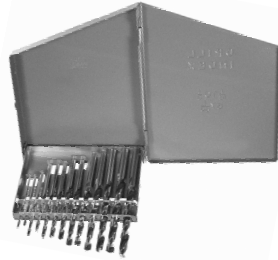


DRILL SETS

JOBBER LENGTH

13 Piece Set
1/16 -- 1/4 by 64^{ths}
in Metal Index
Case No. CZ13



| Description | Set No. | Price Each |
|----------------------------------|---------|------------|
| ▶ HIGH SPEED STEEL | | |
| Surface Treated 118° Point | 307G | 32.90 |
| Bright Finish 118° Point | 307GB | 32.90 |
| Heavy Duty 135° Split Point | 307GH | 34.50 |
| Left Hand 118° Point | 307GL | 83.90 |
| Type A 118° Split Point | 307GHA | 34.50 |
| ▶ TITANIUM COATED | | |
| Gold Coated 118° Point | 307TG | 72.25 |
| ▶ COBALT | | |
| Bronze 135° Split Point | 307CG | 55.00 |
| ● SOLID CARBIDE | | |
| Micrograin | C800SG | 316.75 |
| ● BLIZZARD BIT AND DOUBLE MARGIN | | |
| Black and Gold 135° Split Point | 307GQ | 36.77 |
| Double Margin 118° Split Point | 314S13 | 36.00 |

15 Piece Set
1/16 -- 1/2 by 32^{nds}
in Metal Index
Case No. CZ15



| Description | Set No. | Price Each |
|----------------------------------|---------|------------|
| ▶ HIGH SPEED STEEL | | |
| Surface Treated 118° Point | 307R | 85.95 |
| Bright Finish 118° Point | 307RB | 85.95 |
| Reduced 3/8 Shank 118° Point | 307RRS | 105.00 |
| Heavy Duty 135° Split Point | 307RH | 93.00 |
| Left Hand 118° Point | 307RL | 211.30 |
| ▶ TITANIUM COATED | | |
| Gold Coated 118° Point | 307TR | 196.00 |
| ▶ COBALT | | |
| Bronze 135° Split Point | 307CR | 150.00 |
| ● SOLID CARBIDE | | |
| Micrograin | C800SR | 893.00 |
| ● BLIZZARD BIT AND DOUBLE MARGIN | | |
| Black and Gold 135° Split Point | 307RQ | 107.29 |
| Double Margin 118° Split Point | 314S15 | 100.00 |

21 Piece Set
1/16 -- 3/8 by 64^{ths}
in Metal Index
Case No. CZ21



| Description | Set No. | Price Each |
|----------------------------------|---------|------------|
| ▶ HIGH SPEED STEEL | | |
| Surface Treated 118° Point | 307S | 77.50 |
| Bright Finish 118° Point | 307SY | 77.50 |
| Heavy Duty 135° Split Point | 307SH | 85.00 |
| Left Hand 118° Point | 307SL | 196.46 |
| ▶ TITANIUM COATED | | |
| Gold Coated 118° Point | 307TS | 187.67 |
| ▶ COBALT | | |
| Bronze 135° Split Point | 307CS | 136.50 |
| ● BLIZZARD BIT AND DOUBLE MARGIN | | |
| Black and Gold 135° Split Point | 307SQ | 95.83 |
| Double Margin 118° Split Point | 314S21 | 107.00 |

29 Piece Set
1/16 -- 1/2 by 64^{ths}
in Metal Index
Case No. CZ29



| Description | Set No. | Price Each |
|---------------------------------|---------|------------|
| ▶ HIGH SPEED STEEL | | |
| Surface Treated 118° Point | 307F | 160.00 |
| Bright Finish 118° Point | 307FB | 160.00 |
| Reduced 3/8 Shank 118° Point | 308A | 199.00 |
| Reduced 1/4 Shank 118° Point | 304A | 230.00 |
| Heavy Duty 135° Split Point | 307FH | 179.00 |
| Type A 118° Split Point | 307FHA | 179.00 |
| Fast Spiral 118° Point | 307FF | 211.50 |
| Left Hand 118° Point | 307FL | 410.00 |
| ● HIGH SPEED STEEL | | |
| Parabolic 135° Split Point | 307FP | 277.00 |
| Double Margin 118° Split Point | 314S29 | 188.00 |
| Half Round 118° Point | 307FHR | 841.32 |
| ▶ TITANIUM COATED | | |
| Gold Coated 118° Point | 307TF | 379.00 |
| ▶ COBALT | | |
| Bronze 135° Split Point | 307CF | 288.00 |
| ● BLIZZARD BIT | | |
| Black and Gold 135° Split Point | 307FQ | 201.00 |

DRILL SETS



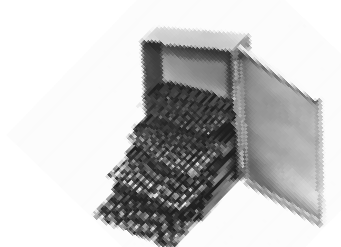
JOBBER LENGTH

26 Piece Set
A -- Z Letter Sizes
in Metal Index
Case No. CZ26



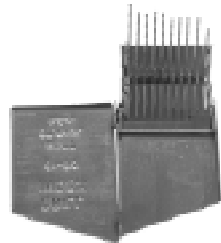
| Description | Set No. | Price Each |
|----------------------------|---------|------------|
| ▶ HIGH SPEED STEEL | | |
| Surface Treated 118° Point | 307L | 169.00 |
| Bright Finish 118° Point | 307LB | 169.00 |
| Left Hand 118° Point | 307LL | 419.72 |
| ▶ TITANIUM COATED | | |
| Gold Coated 118° Point | 307TL | 307.00 |
| ▶ COBALT | | |
| Bronze 135° Split Point | 307CL | 294.00 |

60 Piece Set
1-- 60 Wire Gauge
in Metal Index
Case No. CZ60



| Description | Set No. | Price Each |
|-----------------------------|---------|------------|
| ▶ HIGH SPEED STEEL | | |
| Surface Treated 118° Point | 307W | 123.00 |
| Bright Finish 118° Point | 307WB | 123.00 |
| Heavy Duty 135° Split Point | 307WH | 138.00 |
| Left Hand 118° Point | 307WL | 350.74 |
| ▶ TITANIUM COATED | | |
| Gold Coated 118° Point | 307TW | 332.00 |
| ▶ COBALT | | |
| Bronze 135° Split Point | 307CW | 222.00 |

20 Piece Set
61-- 80 Wire Gauge
in Metal Index
Case No. CZ20



| Description | Set No. | Price Each |
|----------------------------|---------|------------|
| ▶ HIGH SPEED STEEL | | |
| Surface Treated 118° Point | 307V | 47.50 |
| Bright Finish 118° Point | 307VB | 47.50 |
| ▶ COBALT | | |
| Bronze 135° Point | 307CV | 82.73 |

115 Piece Set
1/16 -- 1/2 by 64^{ths}
A -- Z Letter Sizes
1-- 60 Wire Gauge
in Metal Index
Case No. CZ115



| Description | Set No. | Price Each |
|-----------------------------|---------|------------|
| ▶ HIGH SPEED STEEL | | |
| Surface Treated 118° Point | 307X | 469.00 |
| Bright Finish 118° Point | 307XB | 469.00 |
| Heavy Duty 135° Split Point | 307XH | 516.99 |
| ▶ COBALT | | |
| Bronze 135° Split Point | 307CX | 816.00 |
| ▶ TITANIUM COATED | | |
| Gold Coated 118° Point | 307TX | 1027.00 |

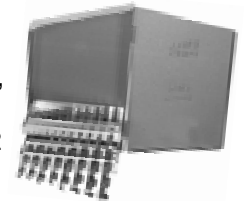
135 Piece Set
1/16 -- 1/2 by 64^{ths}
A -- Z Letter Sizes
1-- 80 Wire Gauge
in Metal Index
Case No. CZ135



| Description | Set No. | Price Each |
|----------------------------|---------|------------|
| ▶ HIGH SPEED STEEL | | |
| Surface Treated 118° Point | 307Y | 516.00 |
| Bright Finish 118° Point | 307YB | 516.00 |
| ▶ COBALT | | |
| Bronze 135° Split Point | 307CY | 878.00 |

TOOL CRIB SET

19 Piece Set
1/16, 5/64, 3/32, 1/8, #29, #25,
5/32, #21, 3/16, #7, 7/32, 1/4,
F, 5/16, U, 3/8, 27/64, 7/16, 1/2
in Metal Index
Case No. CZ119



| Description | Set No. | Price Each |
|-----------------------------|---------|------------|
| ▶ HIGH SPEED STEEL | | |
| Surface Treated 118° Point | 307J | 87.90 |
| Heavy Duty 135° Split Point | 307JH | 95.74 |
| ▶ COBALT | | |
| Bronze 135° Split Point | 307CJ | 149.28 |



HIGH SPEED STEEL AND COBALT

DRILL SETS

METRIC JOBBER LENGTH

11 Piece Metric Set
1.00mm -- 6.00mm by .5mm
in Metal Index
Case No. CZM11



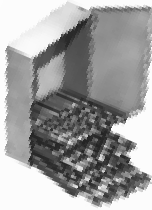
| Description | Set No. | Price Each |
|--------------------|---------|------------|
| ● HIGH SPEED STEEL | | |
| 118° Point | 307MA | 29.86 |
| ● COBALT | | |
| 135° Split Point | 307CMA | 47.69 |

19 Piece Metric Set
1.00mm -- 10.00mm by .5mm
in Metal Index
Case No. CZM19



| Description | Set No. | Price Each |
|--------------------|---------|------------|
| ● HIGH SPEED STEEL | | |
| 118° Point | 307MB | 81.00 |
| ● COBALT | | |
| 135° Split Point | 307CMB | 138.00 |

25 Piece Metric Set
1.00mm -- 13.00mm
by .5mm
in Metal Index
Case No. CZM25



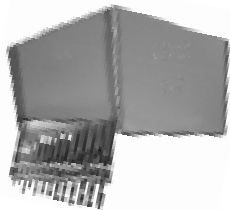
| Description | Set No. | Price Each |
|--------------------|---------|------------|
| ● HIGH SPEED STEEL | | |
| 118° Point | 307MD | 159.00 |
| ● COBALT | | |
| 135° Split Point | 307CMD | 270.00 |

134 Piece Set
1.00mm -- 13.00mm by .5mm
1/16 -- 1/2 by 64^{ths}
1 -- 80 Wire Gauge
in Metal Index
Case No. CZ134



| Description | Set No. | Price Each |
|--------------------|---------|------------|
| ● HIGH SPEED STEEL | | |
| 118° Point | 307K | 435.00 |
| ● COBALT | | |
| 135° Split Point | 307CK | 745.00 |

SCREW MACHINE LENGTH



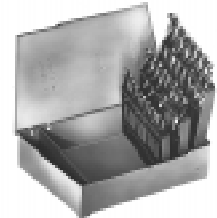
13 Piece Set
1/16 -- 1/4 by 64^{ths}
in Metal Index
Case No. CZ13S

| Description | Set No. | Price Each |
|----------------------------------|---------|------------|
| ▶ HIGH SPEED STEEL | | |
| Surface Treated 135° Split Point | 607G | 35.00 |
| Bright Finish 118° Point | 607GB | 33.00 |
| ● COBALT | | |
| Bronze 135° Split Point | 607CG | 49.00 |

33 Piece Set
1/2 -- 1" by 64^{ths}
in Metal Stand
Case No. CZ833

| Description | Set No. | Price Each |
|--------------------------|---------|------------|
| ▶ HIGH SPEED STEEL | | |
| Bright Finish 118° Point | 607H | 1517.66 |

29 Piece Set
1/16 -- 1/2 by 64^{ths}
in Metal Index
Case No. CZ29S



| Description | Set No. | Price Each |
|----------------------------------|---------|------------|
| ▶ HIGH SPEED STEEL | | |
| Surface Treated 135° Split Point | 607F | 155.00 |
| Bright Finish 118° Point | 607FB | 154.00 |
| ● COBALT | | |
| Bronze 135° Split Point | 607CF | 255.00 |



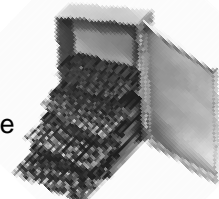
26 Piece Set
A -- Z Letter Sizes
in Metal Index
Case No. CZ26S

| Description | Set No. | Price Each |
|----------------------------------|---------|------------|
| ▶ HIGH SPEED STEEL | | |
| Surface Treated 135° Split Point | 607L | 171.44 |
| Bright Finish 118° Point | 607LB | 165.37 |
| ● COBALT | | |
| Bronze 135° Split Point | 607CL | 285.00 |

115 Piece Set
1/16 -- 1/2 by 64^{ths}
1 -- 60 Wire Gauge
A -- Z Letter Sizes
in Metal Index
Case No. CZ115S

| Description | Set No. | Price Each |
|--------------------------|---------|------------|
| ▶ HIGH SPEED STEEL | | |
| Surface Treated 135° SP | 607X | 462.00 |
| Bright Finish 118° Point | 607XB | 440.00 |
| ● COBALT | | |
| Bronze 135° Split Point | 607CX | 741.00 |

60 Piece Set
1 -- 60 Wire Gauge
in Metal Index
Case No. CZ60S



| Description | Set No. | Price Each |
|----------------------------------|---------|------------|
| ▶ HIGH SPEED STEEL | | |
| Surface Treated 135° Split Point | 607W | 117.00 |
| Bright Finish 118° Point | 607WB | 110.00 |
| ● COBALT | | |
| Bronze 135° Split Point | 607CW | 195.00 |

DRILL SETS

Silver and Deming

1/2" REDUCED SHANK DRILL SETS



MICHIGAN DRILL®
Manufacturing Since 1969

8 Piece Set
9/16 — 1" by 16^{ths}
in Metal Index
Case No. CZ303



| Description | Set No. | Price Each |
|--------------------|---------|------------|
| ▶ HIGH SPEED STEEL | | |
| Round Shank | 303SA | 359.00 |
| ● HIGH SPEED STEEL | | |
| Flatted Shank | 303FSA | 394.00 |
| ● COBALT | | |
| Round Shank | 303CA | 624.00 |
| Flatted Shank | 303FCA | 690.00 |

10 Piece Set
9/16 — 1" by 16^{ths},
1-1/8 and 1-1/4
in Wood Block

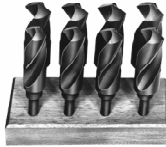
| Description | Set No. | Price Each |
|--------------------|---------|------------|
| ▶ HIGH SPEED STEEL | | |
| Round Shank | 303SJ | 539.00 |
| ● HIGH SPEED STEEL | | |
| Flatted Shank | 303FSJ | 566.00 |
| ● COBALT | | |
| 135° Notched Point | 303CS | 1024.00 |

13 Piece Set
17/32 — 3/4 by 32^{nds}
13/16 — 1" by 16^{ths}, 31/32
in Wood Block



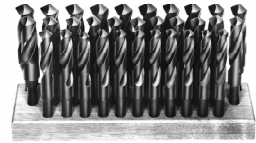
| Description | Set No. | Price Each |
|--------------------|---------|------------|
| ▶ HIGH SPEED STEEL | | |
| Round Shank | 303SD | 545.00 |
| ● HIGH SPEED STEEL | | |
| Flatted Shank | 303FSD | 574.00 |
| ● COBALT | | |
| 135° Notched Point | 303CD | 959.00 |

8 Piece Set
1-1/16 — 1-1/2 by 16^{ths}
in Wood Block



| Description | Set No. | Price Each |
|--------------------|---------|------------|
| ▶ HIGH SPEED STEEL | | |
| Round Shank | 303SB | 980.00 |
| ● HIGH SPEED STEEL | | |
| Flatted Shank | 303FSB | 1029.00 |
| ● COBALT | | |
| 135° Notched point | 303CB | 2060.00 |

33 Piece Set
1/2 — 1" by 64^{ths}
in Metal Stand
Case No. CZ833S



| Description | Set No. | Price Each |
|--------------------|---------|------------|
| ▶ HIGH SPEED STEEL | | |
| Round Shank | 303SG | 1460.00 |
| ● HIGH SPEED STEEL | | |
| Flatted Shank | 303SF | 1524.00 |
| ● COBALT | | |
| 135° Notched Point | 303CG | 2485.00 |

3/4" REDUCED SHANK DRILL SETS

5 Piece Set
in Wood Block



| Description | Set No. | Price Each |
|-------------------------------------|---------|------------|
| ● HIGH SPEED STEEL | | |
| 13/16 — 1-1/16 by 16 ^{ths} | 306G | 340.00 |
| 1" — 1-1/2 by 8 ^{ths} | 306A | 625.00 |
| 1" — 2" by 1/4" | 306B | 939.00 |
| ● COBALT | | |
| 13/16 — 1-1/16 by 16 ^{ths} | 306H | 575.00 |
| 1" — 1-1/2 by 8 ^{ths} | 306D | 1185.00 |
| 1" — 2" by 1/4" | 306E | 1825.00 |

3/8" REDUCED SHANK DRILL SETS

8 Piece Set
in Wood Block

| Description | Set No. | Price Each |
|--|---------|------------|
| ▶ HIGH SPEED STEEL | | |
| 3/8 — 17/32 by 32 ^{nds} , 9/16, 5/8 | 308D | 173.00 |
| 17/32 — 3/4 by 32 ^{nds} | 308E | 307.00 |
| ● COBALT | | |
| 3/8 — 17/32 by 32 ^{nds} , 9/16, 5/8 | 308CD | 303.76 |

CARBIDE TIPPED BOWLING BALL DRILL SETS

in Wood Block



| Description | Pieces Per Set | Set No. | Price Each |
|--|----------------|---------|------------|
| ■ 1/2" STRAIGHT SHANK — SILVER AND DEMING | | | |
| 5/8 — 1-1/8 by 32 ^{nds} | 17 | CT810S | 540.00 |
| 7/16 — 1-1/8 by 32 ^{nds} , 61/64, 63/64, 1-1/64 | 23 | CT810L | 704.85 |
| ■ TAPER SHANK | | | |
| 5/8 — 1-1/8 by 32 ^{nds} | 17 | CT811S | 895.00 |
| 7/16 — 1-1/8 by 32 ^{nds} , 61/64, 63/64, 1-1/64 | 23 | CT811L | 1175.00 |

MASONRY DRILL SETS

| Description | Pieces Per Set | Container | Set No. | Price Each |
|--|----------------|-----------|---------|------------|
| ▶ 1/4, 5/16, 3/8, 1/2 by 4" Overall | 4 | Polytube | CT890S | 25.00 |
| 5 pcs 1/4—1/2 by 16 ^{ths} HS (1/4" Shk) and 5 pcs 1/4—1/2 by 16 ^{ths} CT Masonry | 10 | Block | 304B | 85.00 |

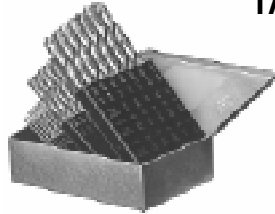


HIGH SPEED STEEL AND COBALT

DRILL SETS

TAPER LENGTH

29 Piece Set
1/16 — 1/2 by 64^{ths}
in Metal Index
Case No. CZT29



| Description | Set No. | Price Each |
|----------------------------|---------|------------|
| ▶ HIGH SPEED STEEL | | |
| Surface Treated 118° Point | 407F | 327.00 |
| ● COBALT | | |
| Bronze 135° Split Point | 407CF | 672.00 |

16 Piece Set
Over 1/2" Diameter
in Metal Index
Case No. CZA16 or CZB16



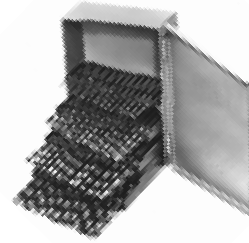
| Description | Set No. | Price Each |
|---|--------------|-------------------|
| ▶ HIGH SPEED STEEL | | |
| 33/64 - 3/4 by 64 ^{ths} 49/64 - 1" by 64 ^{ths} | 407B 407C | 746.00 1360.00 |

26 Piece Set
A — Z Letter Sizes
in Metal Index
Case No. CZT26



| Description | Set No. | Price Each |
|----------------------------|---------|------------|
| ▶ HIGH SPEED STEEL | | |
| Surface Treated 118° Point | 407L | 420.00 |

60 Piece Set
1 — 60 Wire Gauge
in Metal Index
Case No. CZT60



| Description | Set No. | Price Each |
|----------------------------|---------|------------|
| ▶ HIGH SPEED STEEL | | |
| Surface Treated 118° Point | 407W | 512.00 |

TAPER SHANK

16 Piece Set
Over 1/2" Diameter
in Metal Index
Case No. CZA16 or CZB16



| Description | Set No. | Price Each |
|---|----------------|--------------------|
| ▶ HIGH SPEED STEEL | | |
| 33/64 - 3/4 by 64 ^{ths} 49/64 - 1" by 64 ^{ths} | 200A 200B | 780.00 1326.00 |
| ● COBALT | | |
| 33/64 - 3/4 by 64 ^{ths} 49/64 - 1" by 64 ^{ths} | 210CA 210CB | 1371.54 2297.00 |

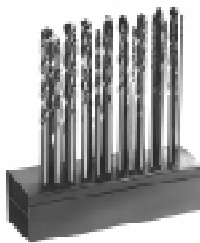
STANDARD STEP DRILLS

6 Piece Set
in Wood Block



| Description | Set No. | Price Each |
|--|--------------------------------|--------------------------------------|
| ■ FLAT HEAD SCREW | | |
| Jobber Length #6 — 3/8 NC Screw Sizes Cobalt Jobber Length #6 — 3/8 Screw Sizes | 372S 372CS | 158.35 285.00 |
| ■ CAP SCREW | | |
| Jobber Length #6 — 3/8 NC Screw Sizes Taper Length #6 — 3/8 NC Screw Size Metric Jobber Length 3mm — 10mm Screw Sizes Cobalt Jobber Length #6 — 3/8 Screw Sizes | 371S 471S 371MS 371CS | 127.52 185.65 145.00 230.00 |
| ■ TAP DRILL | | |
| Jobber Length #6 — 3/8 NC Tap Sizes Taper Length #6 — 3/8 NC Tap Sizes Metric Jobber Length 3mm — 10mm Tap Sizes Cobalt Jobber Length #6 — 3/8 NC Tap Sizes | 370S 470S 370MS 370CS | 98.16 146.93 104.00 228.00 |

29 Piece Set
1/16 — 1/2 by 64^{ths}
in Metal Stand
Case No. CZ829



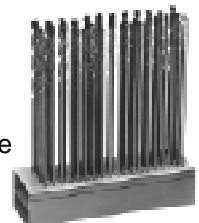
| Description | Set No. | Price Each |
|---|-----------------|------------------|
| ▶ HIGH SPEED STEEL | | |
| 6" Overall Length 12" Overall Length | 906SFA 912SF | 435.00 642.00 |
| ● COBALT | | |
| 12" Overall Length | 912CSF | 1034.00 |

AIRCRAFT EXTENSION DRILLS

26 Piece Set
A — Z Letter Sizes
in Metal Stand
Case No. CZ826

| Description | Set No. | Price Each |
|---|----------------|------------------|
| ▶ HIGH SPEED STEEL | | |
| 6" Overall Length 12" Overall Length | 906SL 912SL | 500.67 677.32 |

60 Piece Set
1 — 60 Wire Gauge
in Metal Stand
Case No. CZ860



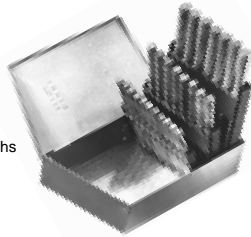
| Description | Set No. | Price Each |
|---|----------------|------------------|
| ▶ HIGH SPEED STEEL | | |
| 6" Overall Length 12" Overall Length | 906SW 912SW | 330.00 848.00 |

DRILL SETS



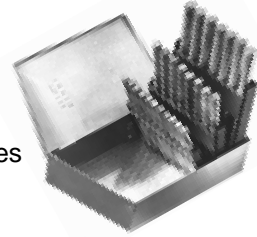
DRILL AND REAMER BLANKS

29 Piece Set
1/16 — 1/2 by 64^{ths}
in Metal Index
Case No. CZ29



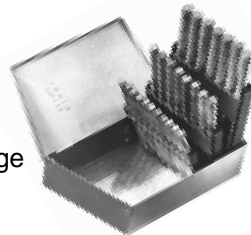
| Description | Set No. | Price Each |
|--------------------|---------|------------|
| ▶ HIGH SPEED STEEL | | |
| Drill Blanks | 950SF | 250.00 |
| ● HIGH SPEED STEEL | | |
| Reamer Blanks | 950SR | 250.00 |

26 Piece Set
A — Z Letter Sizes
in Metal Index
Case No. CZ26



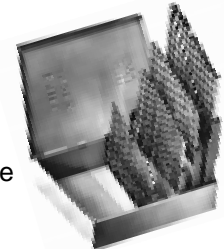
| Description | Set No. | Price Each |
|--------------------|---------|------------|
| ▶ HIGH SPEED STEEL | | |
| Drill Blanks | 950SL | 227.39 |

20 Piece Set
61 — 80 Wire Gauge
in Metal Index
Case No. CZ20



| Description | Set No. | Price Each |
|--------------------|---------|------------|
| ▶ HIGH SPEED STEEL | | |
| Drill Blanks | 950ST | 55.80 |

60 Piece Set
1 — 60 Wire Gauge
in Metal Index
Case No. CZ60



| Description | Set No. | Price Each |
|--------------------|---------|------------|
| ▶ HIGH SPEED STEEL | | |
| Drill Blanks | 950SW | 195.25 |

115 Piece Set
1/16 — 1/2 by 64^{ths}
1 — 60 Wire Gauge
A — Z Letter Sizes
in Metal Index
Case No. CZ115

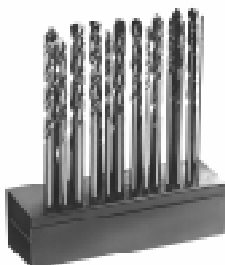
| Description | Set No. | Price Each |
|--------------------|---------|------------|
| ▶ HIGH SPEED STEEL | | |
| Drill Blanks | 950SX | 695.00 |

HALF ROUND DRILLS

29 Piece Set
1/16 — 1/2 by 64^{ths}
in Metal Index
Case No. CZ29

| Description | Set No. | Price Each |
|--------------------|---------|------------|
| ● HIGH SPEED STEEL | | |
| Half Round Drills | 307FHR | 841.32 |

EXTRA LENGTH DRILLS - STRAIGHT SHANK "LONGBOYS"



| Description | Pieces Per Set | Case No. | Set No. | Price Each |
|--|----------------|------------|---------|------------|
| ▶ HIGH SPEED STEEL | | | | |
| 8" Overall Length 1/8 — 3/8 by 16ths | 5 | Wood Block | 208EA | 104.50 |
| 8" Overall Length 1/8 — 3/8 by 64ths | 17 | CZ829 | 208ES | 365.00 |
| 8" Overall Length 1/8 — 1/2 by 64ths | 25 | CZ829 | 208EB | 649.87 |
| 10" Overall Length 1/8 — 1/2 by 16ths | 7 | Wood Block | 208BEA | 192.86 |
| 10" Overall Length 1/8 — 1/2 by 64ths | 25 | CZ829 | 208BEB | 748.02 |
| 12" Overall Length 1/8 — 1/2 by 16ths | 7 | Wood Block | 212EA | 251.00 |
| 12" Overall Length 1/8 — 1/2 by 64ths | 25 | CZ829 | 212ES | 918.00 |
| ● HIGH SPEED STEEL | | | | |
| 18" Overall Length 3/16 — 1/2 by 32nds | 11 | CZ829 | 218ES | 623.00 |

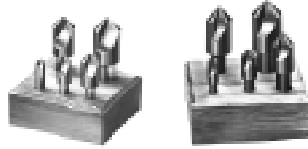




COUNTERSINK SETS

COUNTERSINK

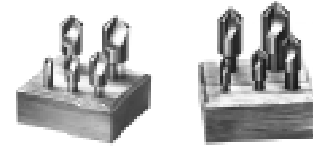
5 Piece Set
in Wood Block



| Description | High Speed Set No. | Price Each | Cobalt Set No. | Price Each |
|---|--------------------|------------|----------------|---------------|
| CENTER REAMERS—THREE FLUTE | | | | |
| Each 5 Piece Set includes: 1/4, 3/8, 1/2, 5/8, 3/4 | Degrees | | | |
| | 60° | 480S5 | 97.20 | — |
| | 82° | 481S5 | 97.20 | 481CS5 175.00 |
| | 90° | 482S5 | 97.20 | — |
| | 100° | 483S5 | 97.20 | — |
| CHATTERLESS—SIX FLUTE | | | | |
| Each 5 Piece Set includes: 1/4, 3/8, 1/2, 5/8, 3/4 | 60° | 495S5 | 125.00 | — |
| | 82° | 496S5 | 125.00 | — |
| | 90° | 497S5 | 125.00 | — |
| | 100° | 498S5 | 125.00 | — |
| MACHINE COUNTERSINKS—SINGLE FLUTE | | | | |
| Each 5 Piece Set includes: 1/4, 3/8, 1/2, 5/8, 3/4 | 60° | 490S5 | 120.50 | — |
| | 82° | 491S5 | 120.50 | 491CS5 217.00 |
| | 90° | 492S5 | 120.50 | — |
| | | 493S5 | 120.50 | — |
| | 100° | 493S5 | 120.50 | — |

COUNTERSINK

9 Piece Set
in Wood Block



| Description | High Speed Set No. | Price Each | Cobalt Set No. | Price Each |
|--|--------------------|------------|----------------|----------------|
| CENTER REAMERS—THREE FLUTE | | | | |
| Each 9 Piece Set includes: 1/4, 3/8, 1/2, 5/8, 3/4, 1, 1-1/4, 1-1/2, 2 | Degrees | | | |
| | 60° | 480S9 | 545.10 | — |
| | 82° | 481S9 | 545.10 | 481CS9 980.91 |
| | 90° | 482S9 | 545.10 | — |
| MACHINE COUNTERSINKS—SINGLE FLUTE | | | | |
| Each 9 Piece Set includes: 1/4, 3/8, 1/2, 5/8, 3/4, 1, 1-1/4, 1-1/2, 2 | 60° | 490S9 | 667.00 | — |
| | 82° | 491S9 | 667.00 | 491CS9 1200.00 |
| | 90° | 492S9 | 667.00 | — |
| | | 493S9 | 667.00 | — |
| | 100° | 493S9 | 667.00 | — |

COUNTERSINK

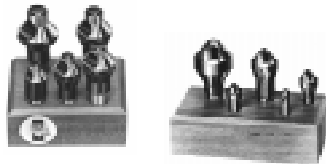
8 Piece Set
in Wood Block



| Description | High Speed Set No. | Price Each |
|--|--------------------|--------------|
| CHATTERLESS—SIX FLUTE | | |
| Each 8 Piece Set includes: 1/4, 5/16, 3/8, 1/2, 5/8, 3/4, 7/8, 1 | Degrees | |
| | 60° | 495S8 255.00 |
| | 82° | 496S8 255.00 |
| | 90° | 497S8 255.00 |
| | 100° | 498S8 255.00 |

COUNTERSINK AND DEBURRING

5 Piece Set
in Wood Block



| Description | High Speed Set No. | Price Each | Cobalt Set No. | Price Each |
|--|--------------------|------------|----------------|--------------|
| PILOTED | | | | |
| Set includes: #11, #13, #15, #17, #19 | Degrees | | | |
| | 82° | 544PS | 105.50 | — |
| PILOTLESS | | | | |
| Each 5 Piece Set includes: #0, #1, #2, #3, #4 | 60° | 543S | 87.82 | — |
| | 82° | 544S | 84.80 | 544CS 152.64 |
| | 90° | 546S | 84.80 | 546CS 152.64 |
| | | 547S | 89.42 | — |
| | 100° | 547S | 89.42 | — |

8 Piece Set — in Wood Block

| Description | Set No. | Price Each |
|---|---------|-------------|
| PILOTLESS | | |
| Set includes: #0, #1, #2, #3, #4, #5, #6, #7 | Degrees | |
| | 82° | 544T 413.80 |

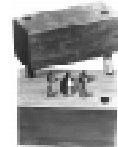
COUNTERSINK

12 Piece Set
in Wood Block

| Description | High Speed Set No. | Price Each |
|--|--------------------|---------------|
| MACHINE COUNTERSINKS—SINGLE FLUTE | | |
| Each 12 Piece Set includes: 3/16, 1/4, 5/16, 3/8, 1/2, 5/8, 3/4, 7/8, 1, 1-1/4, 1-1/2, 2 | Degrees | |
| | 60° | 490S12 746.50 |
| | 82° | 491S12 746.50 |
| | 90° | 492S12 746.50 |
| | 100° | 493S12 746.50 |

COMBINED DRILL AND COUNTERSINK

5 Piece Set
in Wood Block



| Description | Set No. | Price Each |
|-------------------------------|---------|------------|
| HIGH SPEED STEEL | | |
| Plain Type — 1 — 5 Import | 585P5 | 30.40 |
| Bell Type — 11 — 15 Bell | 587B | 42.47 |
| HIGH SPEED STEEL | | |
| Plain Type — 1 — 5 USA | 585UP5 | 35.90 |
| Plain Type — 1 — 5 Tin Coated | 585PTIN | 41.94 |
| COBALT | | |
| Plain Type — 1 — 5 Import | 585CP | 93.43 |
| Plain Type — 1 — 5 USA | 585CUP | 110.00 |
| SOLID CARBIDE—USA | | |
| Plain Type — 1 — 5 | 585CS5 | 228.00 |

8 Piece Set — in Wood Block

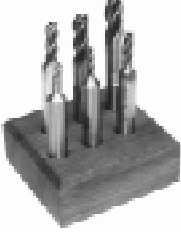
| Description | Set No. | Price Each |
|---------------------------|---------|------------|
| HIGH SPEED STEEL | | |
| Plain Type — 1 — 8 Import | 585P8 | 88.78 |
| HIGH SPEED STEEL | | |
| Plain Type — 1 — 8 USA | 585UP8 | 108.65 |

END MILL SETS

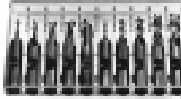


Sets Furnished in Wood Block

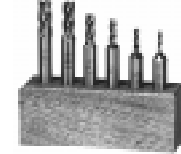
241A
3/8" Shank 4 Flute
Double-End



TC-151
Cobalt T-15



205CA
Four Flute - 3/8" Shank



CRS2
Cobalt Roughers



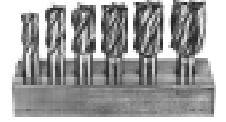
231S
2 Flute
Regular Length



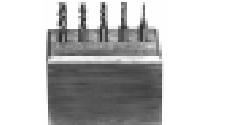
231A
3/8" Shank - 2 Flute



205S
4 Flute - 3/4" Shank

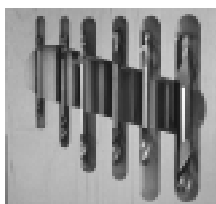


245CA
Miniature Cobalt
Double-End

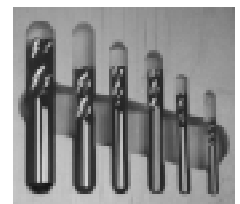


| Description | Pieces Per Set | Quality Import | | Made in U.S.A. | |
|---|----------------|----------------|------------|----------------|------------|
| | | Set No. | Price Each | Set No. | Price Each |
| HIGH SPEED STEEL | | | | | |
| SINGLE END — TWO FLUTE REGULAR LENGTH | | | | | |
| 3/8 Shank 1/8, 3/16, 1/4, 5/16, 3/8, 1/2 | 6 | 231A | 89.00 | 231AU | 103.00 |
| 3/4 Shank 3/4, 7/8, 1, 1-1/8, 1-1/4, 1-1/2 | 6 | 231S | 349.00 | 231SU | 459.00 |
| SINGLE END — MULTI-FLUTE REGULAR LENGTH | | | | | |
| 3/8 Shank 1/8, 3/16, 1/4, 5/16, 3/8, 1/2 | 6 | 205A | 88.50 | 205AU | 110.00 |
| 3/4 Shank 3/4, 7/8, 1, 1-1/8, 1-1/4, 1-1/2 | 6 | 205S | 363.50 | 205SU | 445.00 |
| DOUBLE END | | | | | |
| Two Flute, 3/8 Shank 1/8, 5/32, 3/16, 1/4, 5/16, 3/8 | 6 | 261A | 117.00 | 261AU | 148.00 |
| Two Flute, 1/8, 3/16, 1/4, 5/16, 3/8, 1/2x1/2 | 6 | 261B | 128.00 | — | — |
| Four Flute, 3/8 Shank 1/8, 5/32, 3/16, 1/4, 5/16, 3/8 | 6 | 241A | 119.00 | 241AU | 137.00 |
| Four Flute, Center Cut 1/8, 5/32, 3/16, 1/4, 5/16, 3/8 | 6 | 242A | 147.00 | 242AU | 180.00 |
| Four Flute, 1/8, 3/16, 1/4, 5/16, 3/8, 1/2x1/2 | 6 | 241B | 128.00 | — | — |
| BALL END | | | | | |
| Two Flute 1/8, 3/16, 1/4, 5/16, 3/8, 1/2 | 6 | 291AS | 137.40 | 291AUS | 155.12 |
| HIGH SPEED STEEL | | | | | |
| DOUBLE END — MINIATURE REGULAR LENGTH | | | | | |
| Two Flute, 3/16 Shank 1/16, 3/32, 1/8, 5/32, 3/16 | 5 | 265A | 87.50 | — | — |
| Four Flute, 3/16 Shank 1/16, 3/32, 1/8, 5/32, 3/16 | 5 | 245A | 84.50 | — | — |
| CORNER ROUNDING END MILL | | | | | |
| 1/16 - 3/8 Radius 1/16, 3/32, 1/8, 5/32, 3/16, 1/4x1/2, 5/16x1/2, 3/8x1/2 | 8 | 282A | 559.00 | — | — |
| COBALT | | | | | |
| COBALT ROUGHER END MILLS | | | | | |
| Mini-Set 1/4, 5/16, 3/8, 1/2 | 4 | CRS-1 | 177.00 | — | — |
| Bridgeport Set 1/2, 5/8, 3/4x3/4, 1x3/4 | 4 | CRS-2 | 339.00 | CRSU-2 | 361.00 |
| COBALT | | | | | |
| COBALT T-15 | | | | | |
| Two and Four Flute 1/8, 3/16, 1/4, 5/16, 3/8 | 10 | TC-151 | 369.00 | — | — |
| M-42 COBALT, Center Cut | | | | | |
| Four Flute Double End 1/8, 3/16, 1/4, 5/16, 3/8, 1/2 | 6 | 241CS | 195.00 | — | — |
| Four Flute Single End 1/8, 3/16, 1/4, 5/16, 3/8, 1/2 | 6 | 205CA | 140.25 | — | — |
| DOUBLE END — MINIATURE REGULAR LENGTH | | | | | |
| Two Flute, 3/16 Shank 1/16, 3/32, 1/8, 5/32, 3/16 | 5 | 265CA | 149.00 | — | — |
| Four Flute, 3/16 Shank 1/16, 3/32, 1/8, 5/32, 3/16 | 5 | 245CA | 149.00 | — | — |
| TITANIUM NITRIDE COATED | | | | | |
| SINGLE END — TWO FLUTE REGULAR LENGTH | | | | | |
| 3/8 Shank 1/8, 3/16, 1/4, 5/16, 3/8, 1/2 | 6 | 231AT | 125.00 | 231ATU | 184.00 |
| 3/4 Shank 3/4, 7/8, 1, 1-1/8, 1-1/4, 1-1/2 | 6 | 231ST | 475.00 | 231STU | 665.00 |
| SINGLE END — MULTI-FLUTE REGULAR LENGTH | | | | | |
| 3/8 Shank 1/8, 3/16, 1/4, 5/16, 3/8, 1/2 | 6 | 205AT | 125.00 | 205ATU | 172.00 |
| 3/4 Shank 3/4, 7/8, 1, 1-1/8, 1-1/4, 1-1/2 | 6 | 205ST | 522.30 | 205STU | 751.00 |
| DOUBLE END | | | | | |
| Two Flute, 3/8 Shanks 1/8, 5/32, 3/16, 1/4, 5/16, 3/8 | 6 | 261AT | 199.20 | 261ATU | 249.00 |
| Four Flute, 3/8 Shanks 1/8, 5/32, 3/16, 1/4, 5/16, 3/8 | 6 | 241AT | 199.70 | 241ATU | 249.00 |

| 6 Piece Sets | | |
|--|----------|------------|
| All sets below contain 1 piece of each: 1/8, 3/16, 1/4, 5/16, 3/8, 1/2 in Wood Case | | |
| USA SOLID MICROGRAIN CARBIDE | | |
| Description | Set No. | Price Each |
| 2 Flute Single End Regular Length | KS92S | 161.25 |
| 4 Flute Single End Regular Length | KS94S | 161.25 |
| 2 Flute Double End - Stub | KD92S | 205.65 |
| 4 Flute Double End - Stub | KD94S | 205.65 |
| 2 Flute Ball Single End | KB92S | 207.30 |
| 4 Flute Ball Single End | KB94S | 207.30 |
| 2 Flute Ball Double End - Stub | KB82S | 260.60 |
| 4 Flute Ball Double End - Stub | KB84S | 260.60 |
| USA SOLID MICROGRAIN CARBIDE COATED | | |
| 2 Flute Single End TiN Coated | KST92S | 229.95 |
| 4 Flute Single End TiN Coated | KST94S | 229.95 |
| 2 Flute Single End TiAlN Coated | KSTLN92S | 259.50 |
| 4 Flute Single End TiAlN Coated | KSTLN94S | 259.50 |
| USA TITANIUM ALUMINUM NITRIDE COATED | | |
| SINGLE END — MULTI-FLUTE | | |
| 3/8 Shank 1/8, 3/16, 1/4, 5/16, 3/8, 1/2 | 205ATAU | 215.00 |
| SINGLE END — MULTI-FLUTE | | |
| 3/4 Shank 3/4, 7/8, 1, 1-1/8, 1-1/4, 1-1/2 | 205STAU | 841.00 |
| SINGLE END | | |
| Two Flute, 3/8 Shank 1/8, 3/16, 1/4, 5/16, 3/8, 1/2 | 231ATAU | 209.00 |
| Two Flute, 3/4 Shank 3/4, 7/8, 1, 1-1/8, 1-1/4, 1-1/2 | 231STAU | 761.00 |
| DOUBLE END — REGULAR LENGTH | | |
| Two Flute, 3/8 Shank 1/8, 5/32, 3/16, 1/4, 5/16, 3/8 | 261ATAU | 337.00 |
| Four Flute, 3/8 Shank 1/8, 5/32, 3/16, 1/4, 5/16, 3/8 | 241ATAU | 340.00 |



2 Flute - Double End
KD92S



4 Flute - Single End
KS94S

SETS

REAMERS — HIGH SPEED STEEL

| Description | Pieces Per Set | Case No. | Set No. | Price Each | |
|--|----------------|----------|--------------|----------------|----------------|
| ▶ CHUCKING REAMER - STRAIGHT SHANK - STRAIGHT FLUTE | | | | | |
| Fractional 1/16 — 1/2 by 64ths | 29 | CZ129 | 550SF | 678.12 | |
| Letter A — Z | 26 | CZ126 | 550SL | 688.65 | |
| Wire Gauge 1 — 60 | 60 | Pouch | 550SW | 1024.70 | |
| Over and Under .1240 — .5010 | 14 | CZ112 | 550SX | 338.35 | |
| Dowel Pin .1230 — .4995 | 14 | CZ114 | 550SD | 338.45 | |
| ■ USA STRAIGHT SHANK ALIGNING REAMER | | | | | |
| Fractional 1/2, 9/16, 5/8, 3/4 | 4 | Block | 535RS | 199.00 | |
| ▶ HAND REAMER STRAIGHT FLUTE | | | | | |
| Straight Flute 1/4, 3/8, 1/2, 5/8, 3/4 | 5 | Block | 564S | 349.00 | |
| Spiral Flute 1/4, 3/8, 1/2, 5/8, 3/4 | 5 | Block | 565S | 384.99 | |
| ▶ HAND EXPANSION REAMER STRAIGHT FLUTE | | | | | |
| Straight Flute 1/4, 3/8, 1/2, 5/8, 3/4 | 5 | Block | 576S | 575.00 | |
| Spiral Flute 1/4, 3/8, 1/2, 5/8, 3/4 | 5 | Block | 577S | 599.00 | |
| ▶ ADJUSTABLE HAND REAMER | | | | | |
| 1/4 — 3/8 | 8A — 5A | 8 | Block | 570A | 649.99 |
| 15/32 — 1-1/16 Range | A — H | 4 | Block | 570B | 249.00 |
| 15/32 — 1-1/2 | A — K | 11 | Block | 570C | 1075.00 |

550SF
Fractional Straight Shank Chucking Reamer Set

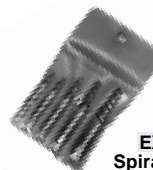


SCREW EXTRACTORS

5 Piece Set, in Handy Pouch

MADE IN USA

| Description | Set No. | Price Each |
|-----------------------|--------------|--------------|
| Straight Flute #1 — 5 | EXT15 | 13.95 |
| Helical Flute #1 — 5 | EXL15 | 13.95 |



EXL15
Spiral Flute Set

CBS8
8 Piece



USA CARBIDE BUR BOX SETS — DOUBLE CUT

| Description | Pieces Per Set | Set No. | Price Each |
|--|----------------|--------------|---------------|
| • SA1, SC1, SD1, SE1, SF1, SG1, SH1, SJ1, SK1, SL1, SM1, SN1 | 12 | CBS12 | 146.00 |
| • SA51, SB51, SC51, SD51, SE51, SF51, SG51, SM51, SN51 | 9 | CBS9 | 80.10 |
| • SA1, SA3, SC1, SC3, SD1, SD3, SF1, SF3 | 8 | CBS8 | 99.00 |

CBS12
12 Piece



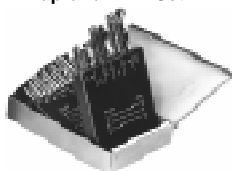
TAPS — HIGH SPEED STEEL

| Description | Pieces Per Set | Case No. | Set No. | Price Each |
|--|----------------|-------------|--------------|---------------|
| ◆ USA HAND TAPS | | | | |
| Taper, Plug and Bott. NC 4-40 thru 1/2-13 and 10-32 | 33 | Block | 770S | 149.95 |
| ● .005 OVER SIZE TAPS | | | | |
| Hand Tap NC 6-32 thru 1/2-13 and 10-32 (Excludes 7/16) | 8 | Block | 775S | 83.00 |
| Spiral Pointed NC 6-32 thru 1/2-13 and 10-32 (Excludes 7/16) | 8 | Block | 785S | 98.00 |
| Combination Combination of Set 775S & 785S | 16 | Block | 785A | 182.00 |
| ◆ USA TAP AND DRILL SETS | | | | |
| Frac. & Mach. Screw 6-32 to 1/2-13 | 16 | Pouch | 770R | 49.95 |
| Frac. & Mach. Screw 6-32 to 1/2-13 | 18 | CZTD18 | 770X | 72.50 |
| Metric Taps 3x 0.5mm to 12x 1.75mm, Drill 2.5 to 10.25mm | 16 | Pouch | 773S | 74.50 |
| ● USA HIGH SPEED PIPE TAPS | | | | |
| Fractional 1/8 — 1" | 6 | Block | 790US | 388.15 |
| ● USA CARBON PIPE TAPS | | | | |
| Fractional 1/8 — 1" | 6 | Block | 793US | 151.09 |
| ■ USA "THREDRILL" COMBINED TAP AND DRILL | | | | |
| Fractional 8-32, 10-24, 10-32, 1/4-20, 5/16-18, 3/8-16 | 6 | Pouch | 789S | 110.00 |
| ● HEX DIES | | | | |
| Fractional 1/4-20, 5/16-18, 3/8-16, 7/16-14, 1/2-13 | 5 | Plastic box | 765S | 81.20 |
| Fractional 1/4-20, 5/16-18, 3/8-16, 7/16-14, 1/2-13, 9/16-12, 5/8-11, 3/4-10 | 8 | Plastic box | 765S1 | 155.80 |

785A
16 Piece
Combination of Set
775S & 785S



770X
Fractional and
Machine Screw Size
Tap and Drill Set



770S
33 Piece
Hand Tap Set

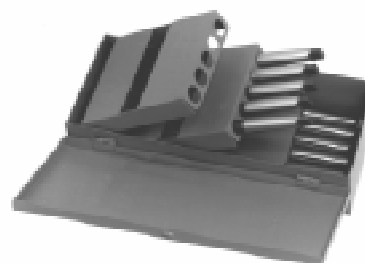
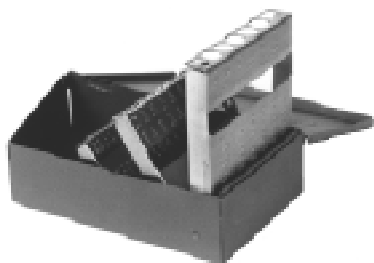


773S
Metric Tap
and Drill Set



◆ HUOT METAL CASES

MADE IN U.S.A.



JOBBER LENGTH INDEXES

| Description | Pieces Per Set | Case No. | Price Each |
|--|----------------|----------|------------|
| Fractional 1/16 — 1/2 by 64ths | 29 | CZ29 | 9.45 |
| Fractional 1/16 — 1/4 by 64ths | 13 | CZ13 | 4.25 |
| Fractional 1/16 — 1/4 by 64ths hang-up | 13 | CZ13H | 3.00 |
| Fractional 1/16 — 3/8 by 64ths | 21 | CZ21 | 7.75 |
| Fractional 1/64 — 1/4 by 64ths | 16 | CZ16 | 11.30 |
| Fractional 1/16 — 1/2 by 32nds | 15 | CZ15 | 7.75 |
| Fractional 1/16 — 1/4 by 64ths and 9/32 — 1/2 by 32nds | 21 | CZ21A | 7.75 |
| Letter A — Z | 26 | CZ26 | 9.45 |
| Wire Gauge 1 — 60 | 60 | CZ60 | 8.10 |
| Wire Gauge 1 — 80 | 80 | CZ80 | 19.40 |
| Wire Gauge 61 — 80 | 20 | CZ20 | 5.40 |
| Metric 1.0mm — 5.9 mm by .1mm | 50 | CZM50 | 10.50 |
| Metric 1.0mm — 6.0 mm by .5mm | 11 | CZM11 | 6.70 |
| Metric 1.0mm — 7.0 mm by .5mm | 13 | CZM13 | 6.95 |
| Metric 1.0mm — 10.0 mm by .5mm | 19 | CZM19 | 9.45 |
| Metric 1.0mm — 13.0 mm by .5mm | 25 | CZM25 | 9.45 |
| Metric 6.0mm — 10.0 mm by .1mm | 41 | CZM41 | 25.00 |

TAPER LENGTH INDEXES

| Description | Pieces Per Set | Case No. | Price Each |
|--------------------------------|----------------|----------|------------|
| Fractional 1/16 — 1/2 by 64ths | 29 | CZT29 | 27.70 |
| Letter A — Z | 26 | CZT26 | 27.70 |
| Wire Gauge 1 — 60 | 60 | CZT60 | 30.30 |

TAPER LENGTH / TAPER SHANK INDEXES

| Description | Pieces Per Set | Case No. | Price Each |
|---------------------------------|----------------|----------|------------|
| Fractional 33/64 — 3/4 by 64ths | 16 | CZA16 | 63.80 |
| Fractional 49/64 — 1" by 64ths | 16 | CZB16 | 71.50 |

SCREW MACHINE LENGTH INDEXES

| Description | Pieces Per Set | Case No. | Price Each |
|--------------------------------|----------------|----------|------------|
| Fractional 1/16 — 1/2 by 64ths | 29 | CZ29S | 15.20 |
| Fractional 1/16 — 3/8 by 64ths | 21 | CZ21S | 12.75 |
| Fractional 1/16 — 1/4 by 64ths | 13 | CZ13S | 7.00 |
| Letter A — Z | 26 | CZ26S | 17.30 |
| Wire Gauge 1 — 60 | 60 | CZ60S | 14.00 |
| Metric 1.0mm — 13.0mm by .5mm | 25 | CZM25S | 17.30 |

COMBINATION INDEXES

| Description | Pieces Per Set | Case No. | Price Each |
|---|----------------|----------|------------|
| JOBBER LENGTH | | | |
| Frac. 1/16 — 1/2 by 64ths, A — Z, 1 — 60 | 115 | CZ115 | 37.80 |
| Frac. 1/16 — 1/2 by 64ths, A — Z, 1 — 80 | 135 | CZ135 | 43.00 |
| Frac. 1/16 — 1/2 by 64ths, 1 — 80, 1mm — 13mm by .5mm | 134 | CZ134 | 43.00 |
| Metric 1.0mm — 13.0mm | 118 | CZM118 | 66.00 |
| SCREW MACHINE | | | |
| Frac. 1/16 — 1/2 by 64ths, A — Z, 1 — 60 | 115 | CZ115S | 43.80 |

1/2" SHANK — SILVER AND DEMING INDEXES

| Description | Pieces Per Set | Case No. | Price Each |
|-------------------------------------|----------------|----------|------------|
| 1/2" Shank — S&D 9/16 — 1" by 16ths | 8 | CZ303 | 27.30 |

TAP INDEXES

| Description | Pieces Per Set | Case No. | Price Each |
|---|----------------|----------|------------|
| NC and NF 1/4-20 To 1/2-20 | 10 | CZTD10 | 12.60 |
| 10 Taps 0-80 to 12-28, 9 Taps 1/64 to 12-24 | 19 | CZTD19 | 12.60 |
| NC 4-40 to 5/8-11 | 10 | CZT10 | 14.70 |

REAMER INDEXES

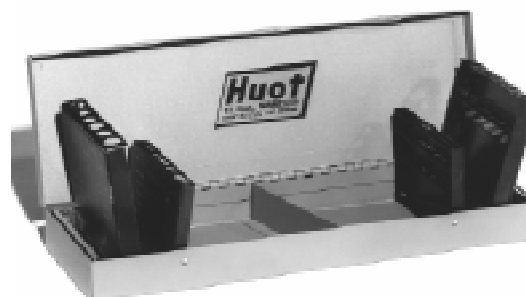
| Description | Pieces Per Set | Case No. | Price Each |
|--------------------------------|----------------|----------|------------|
| Fractional 1/16 — 1/2 by 64ths | 29 | CZ129 | 25.00 |
| Letter A — Z | 26 | CZ126 | 25.00 |
| Wire Gauge 1 — 60 | 60 | CZ160 | 29.40 |
| Over and Under .1240 — .5010 | 14 | CZ112 | 25.00 |
| Dowel Pin .1230 — .4995 | 14 | CZ114 | 25.00 |
| Metric 1.0mm — 13.0mm by .5mm | 25 | CZ125 | 33.60 |

SCREW EXTRACTOR INDEX

| Description | Pieces Per Set | Case No. | Price Each |
|--|----------------|----------|------------|
| 1-5 Screw Extractor and Matching Drill | 10 | CZ10 | 5.25 |

TAP AND DRILL INDEXES

| Description | Pieces Per Set | Case No. | Price Each |
|---|----------------|----------|------------|
| NC 6-32 to 1/2-13 Taps, #36 to 27/64 Drills Holds 9 Drills and 9 Taps | 18 | CZTD18 | 10.50 |
| NF 6-40 to 1/2-20 Taps, #33 to 1/2 Drills Holds 9 Drills and 9 Taps | 18 | CZTD99 | 10.50 |
| Combination of both models above in one case; holds 18 Drills and 18 Taps | 36 | CZTD36 | 42.00 |
| 2.5mmX.45 to 12.0mmX1.75 Taps, 2.05mm to 10.2 Drills. Holds 9 Drills and 9 Taps | 18 | CZTD99M | 11.55 |





◆ HUOT DISPENSER CABINETS AND DRILL DISPLAYS

MADE IN U.S.A



DRILL DISPENSER CABINETS—All Steel

| Description | Case No. | Price Each |
|--|----------|------------|
| Fractional 1/16 — 1/2 by 64ths Jobber | CZD1 | 77.00 |
| Wire Gauge 1 — 60 Jobber | CZD2 | 98.00 |
| Letter A — Z Jobber | CZD3 | 77.00 |
| Metric 1.0mm — 13.0mm by .5mm Jobber | CZD4 | 79.00 |
| Metric 1.0mm — 6.9mm by .1mm Jobber | CZD5 | 99.00 |
| Combination 1/16 — 1/2 by 64ths, A — Z, 1 — 60 | CZD6 | 336.00 |
| Taper Lng/Shk, 1/8 — 1" by 64ths | CZD57 | 345.00 |
| Fractional 1/16 — 1/2 by 64ths Stubs | CZD15 | 79.00 |
| Wire Gauge 1 — 60 Stubs | CZD16 | 99.00 |
| Silver and Deming 33/64 — 1-1/2 | CZD303 | 576.00 |

TAP DISPENSER CABINETS—All Steel

| Description | Case No. | Price Each |
|---|----------|------------|
| Metric 3mm — 24.0mm | CZD7 | 79.00 |
| Fractional 1/4-20 — 1"-14 by 64ths | CZD8 | 79.00 |
| Machine Screw 2-56 — 12-28 | CZD9 | 98.00 |
| Combination NC & NF taps 1/4 to 1-1/2, 2-56 to 12-28, 2.5mm — 30mm | CZD19 | 336.00 |
| Combination 1/4-20 to 1-14 taper, plug, & bottoming, 2-56 — 12-28 taper, plug, bottoming & spiral point | CZD21 | 389.00 |
| Tap/Drill Comb. 6-32 to 1/2-20, #36 to 29/64 Taps and Corresponding Drills | CZD20 | 77.00 |



END MILL DISPENSER CABINETS—All Steel

| Description | Case No. | Price Each |
|--|----------|------------|
| Two Flute Single and Double End 1/16 to 1" | CZD10 | 299.00 |
| Four FLute Single and Double End 1/16 to 1" | CZD11 | 299.00 |
| Two and Four Flute Single and Double End 1/8 to 1" | CZD12 | 77.00 |

REAMER DISPENSERS—All Steel

| Description | Case No. | Price Each |
|---|----------|------------|
| Fractional 1/16 — 1/2 by 64ths | CZD410 | 90.00 |
| Wire Gauge 1 — 60 | CZD420 | 98.00 |
| Letter A — Z | CZD425 | 79.00 |
| Over & Under, Dowel .124 - .501, .123 - .4995 | CZD430 | 77.00 |

CARBIDE INSERT DISPENSER CABINETS—All Steel

| Description | Case No. | Price Each |
|--------------------------------------|----------|------------|
| Triangle, Square, Diamond, and Round | CZD14 | 345.00 |

CARBIDE BUR DISPENSER—All Steel

| Description | Case No. | Price Each |
|--|----------|------------|
| Cylindrical, Ball, Cone, Tree/Pointed, Oval, Cone/Flat end, Tree/Rad | CZD132 | 78.00 |

POINT OF PURCHASE DRILL AND TAP DISPLAYS

DISPLAYS—COUNTERTOP

| Description | Case No. | Price Each |
|------------------------------------|----------|------------|
| Fractional 1/16 — 1/2 by 64ths | CZD60 | 149.00 |
| Letter A — Z | CZD70 | 149.00 |
| Wire Gauge 1 — 60 | CZD80 | 250.00 |
| Tap and Die 4 - 40 — 3/4, 1/8 Pipe | CZD90 | 199.00 |



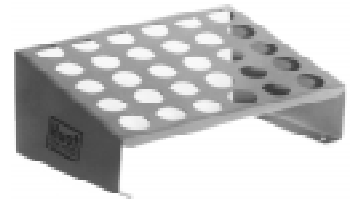
◆ HUOT METAL STANDS

MADE IN USA



DRILL STANDS

| Description | Pieces Per Stand | Stand No. | Price Each |
|---|------------------|---------------|--------------|
| STANDARD SHANKS STAND | | | |
| Fractional 1/16 — 1/2 by 64ths | 29 | CZ829 | 5.60 |
| Fractional 1/2 — 1" by 64ths | 33 | CZ833 | 42.75 |
| Letter A — Z | 26 | CZ826 | 5.60 |
| Wire Gauge 1 — 60 | 60 | CZ860 | 5.60 |
| 1/2" SHANK — SILVER AND DEMING | | | |
| Frac. 1/2 — 1" by 64ths for 1/2" Shanks | 33 | CZ833S | 39.00 |



COLLET STANDS - HEAVY DUTY STEEL

| Description | Pieces Per Stand | Stand No. | Price Each |
|--|------------------|-------------|--------------|
| 5C Collet Stands Holds 30 5C Collets | 30 | CZ5C | 23.50 |
| R-8 Collet Stands Holds 16 R-8 Collets | 16 | CZR8 | 23.50 |

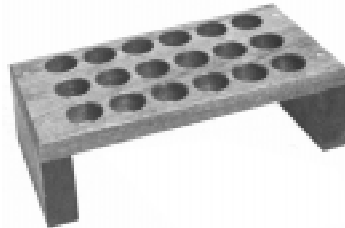
◆ DRILL GAUGES



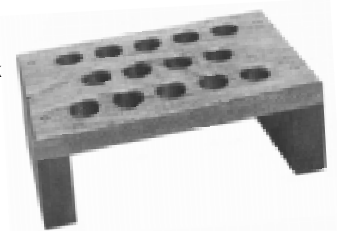
| Description | Order No. | Price Each |
|--------------------------------|--------------|-------------|
| Fractional 1/16 — 1/2 by 64ths | CZG29 | 3.25 |
| Wire Gauge 1 — 60 | CZG60 | 3.75 |
| Fractional 1/2 — 1" by 64ths | CZG30 | 7.60 |

◆ COLLET STANDS

**18 Hole 5C
Wood Collet Block
Tool No. BLK 5C
Price Each \$28.00**



**14 Hole R8
Wood Collet Block
Tool No. BLK R8
Price Each \$26.00**



◆ CNC TOOL CART

Dimensions: 18"W x 35-1/4"L x 35"H
Weight: 75 LBS

- Keeps tools organized and helps protect from damage
- Heavy gauge — All steel infrared baked epoxy finish
- Angled tray for easy, quick tool access from side
- 2 Storage trays with protective lining
- Durable nylon inserts to protect tools
- Heavy duty 5" x 1-1/4" casters, load rated at 1,000 lbs.



| Description | Tool Taper | Pieces Per Stand | Order No. | Price Each |
|-------------------------|------------|------------------|----------------|---------------|
| BT,CAT "V" Flange, NMTB | 30 | 48 | CZ13930 | 469.95 |
| BT | 35 | 48 | CZ13935 | 469.95 |
| BT,CAT "V" Flange, NMTB | 40 | 48 | CZ13940 | 469.95 |
| BT,CAT "V" Flange | 45 | 36 | CZ13945 | 469.95 |
| BT,CAT "V" Flange, NMTB | 50 | 36 | CZ13950 | 469.95 |

◆ NC TOOLHOLDER STORAGE TOWER

Dimensions: 27-5/16"W x 18-5/16"D x 36"H
Weight: 65 LBS

- Stackable and durable 16 gauge steel
- Complete with 3 shelves that can be stacked to form a 5 or 6 shelf tower

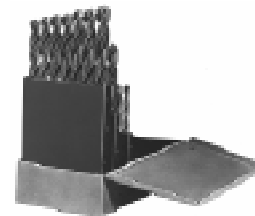
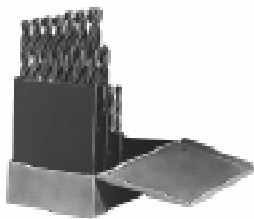


| Description | Tool Taper | Pieces Per Stand | Order No. | Price Each |
|-------------------------|------------|------------------|----------------|---------------|
| BT,CAT "V" Flange, NMTB | 30 | 72 | CZ13830 | 359.00 |
| BT,CAT "V" Flange, NMTB | 40 | 72 | CZ13840 | 359.00 |
| BT,CAT "V" Flange, NMTB | 50 | 54 | CZ13850 | 359.00 |



JOBBER LENGTH DRILLS

GENERAL PURPOSE, 118° POINT



- ▶ **LIST NO. 300 — OXIDE FINISH**
Creates a porous layer that holds cutting oil which provides abrasion resistance and improved chip flow.
- ▶ **LIST NO. 300A — BRIGHT FINISH**
Better chip ejection in low carbon, non-ferrous materials.
- ▶ **LIST NO. 300T — TITANIUM NITRIDE COATED**
For best wear resistance and better lubrication of tool surface which reduces heat and tendency to chip weld.

SET NO. 307L
26 Piece High Speed
Surface Treated Set
A-Z Letter Sizes in Metal Index
SET PRICE — \$169.00

SET NO. 307F
29 Piece High Speed
Surface Treated Set
1/16 - 1/2 x 64ths in Metal Index
SET PRICE — \$160.00

SET NO. 307LB
26 Piece Bright Finish Set
A-Z Letter Sizes in Metal Index
SET PRICE — \$169.00

SET NO. 307FB
29 Piece Bright Finish Set
1/16 - 1/2 x 64ths in Metal Index
SET PRICE — \$160.00

Please order in package quantity.



FRACTIONAL SIZES

| Size | Dec. Equiv. | Flute Length | Overall Length | Pkg. Qty. | Price Each | | |
|-------|-------------|--------------|----------------|-----------|------------------|--------------------|------------------------------|
| | | | | | Oxide Finish 300 | Bright Finish 300A | Titanium Nitride Coated 300T |
| 1/64 | .0156 | 3/16 | 3/4 | 12 | 2.61 | 2.61 | 6.10 |
| 1/32 | .0312 | 1/2 | 1-3/8 | 12 | 1.59 | 1.59 | 6.10 |
| 3/64 | .0469 | 3/4 | 1-3/4 | 12 | 1.52 | 1.52 | 6.10 |
| 1/16 | .0625 | 7/8 | 1-7/8 | 12 | 1.57 | 1.57 | 3.92 |
| 5/64 | .0781 | 1 | 2 | 12 | 1.57 | 1.57 | 3.92 |
| 3/32 | .0938 | 1-1/4 | 2-1/4 | 12 | 1.57 | 1.57 | 3.92 |
| 7/64 | .1094 | 1-1/2 | 2-5/8 | 12 | 1.63 | 1.63 | 3.99 |
| 1/8 | .1250 | 1-5/8 | 2-3/4 | 12 | 1.63 | 1.63 | 4.95 |
| 9/64 | .1406 | 1-3/4 | 2-7/8 | 12 | 1.80 | 1.80 | 5.40 |
| 5/32 | .1562 | 2 | 3-1/8 | 12 | 1.83 | 1.83 | 5.40 |
| 11/64 | .1719 | 2-1/8 | 3-1/4 | 12 | 1.98 | 1.98 | 5.60 |
| 3/16 | .1875 | 2-5/16 | 3-1/2 | 12 | 2.22 | 2.22 | 6.29 |
| 13/64 | .2031 | 2-7/16 | 3-5/8 | 12 | 2.44 | 2.44 | 6.62 |
| 7/32 | .2188 | 2-1/2 | 3-3/4 | 12 | 2.72 | 2.72 | 6.94 |
| 15/64 | .2344 | 2-5/8 | 3-7/8 | 12 | 2.95 | 2.95 | 7.22 |
| 1/4 | .2500 | 2-3/4 | 4 | 12 | 2.99 | 2.99 | 7.29 |
| 17/64 | .2656 | 2-7/8 | 4-1/8 | 12 | 3.76 | 3.76 | 11.40 |
| 9/32 | .2812 | 2-15/16 | 4-1/4 | 6 | 3.88 | 3.88 | 11.60 |
| 19/64 | .2969 | 3-1/16 | 4-3/8 | 6 | 4.48 | 4.48 | 11.90 |
| 5/16 | .3125 | 3-3/16 | 4-1/2 | 6 | 4.96 | 4.96 | 12.40 |
| 21/64 | .3281 | 3-5/16 | 4-5/8 | 6 | 5.50 | 5.50 | 15.69 |
| 11/32 | .3438 | 3-7/16 | 4-3/4 | 6 | 6.14 | 6.14 | 16.46 |
| 23/64 | .3594 | 3-1/2 | 4-7/8 | 6 | 6.91 | 6.91 | 17.38 |

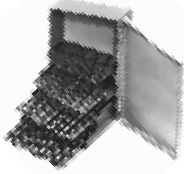
| Size | Dec. Equiv. | Flute Length | Overall Length | Pkg. Qty. | Price Each | | |
|-------|-------------|--------------|----------------|-----------|------------------|--------------------|------------------------------|
| | | | | | Oxide Finish 300 | Bright Finish 300A | Titanium Nitride Coated 300T |
| 3/8 | .3750 | 3-5/8 | 5 | 6 | 7.07 | 7.07 | 18.10 |
| 25/64 | .3906 | 3-3/4 | 5-1/8 | 6 | 8.09 | 8.09 | 21.80 |
| 13/32 | .4062 | 3-7/8 | 5-1/4 | 6 | 8.31 | 8.31 | 22.10 |
| 27/64 | .4219 | 3-15/16 | 5-3/8 | 6 | 9.23 | 9.23 | 22.22 |
| 7/16 | .4375 | 4-1/16 | 5-1/2 | 6 | 9.59 | 9.59 | 23.42 |
| 29/64 | .4531 | 4-3/16 | 5-5/8 | 6 | 10.72 | 10.72 | 24.59 |
| 15/32 | .4688 | 4-5/16 | 5-3/4 | 6 | 11.39 | 11.39 | 25.38 |
| 31/64 | .4844 | 4-3/8 | 5-7/8 | 6 | 11.97 | 11.97 | 26.34 |
| 1/2 | .5000 | 4-1/2 | 6 | 6 | 12.04 | 12.04 | 26.34 |
| 33/64 | .5156 | 4-13/16 | 6-5/8 | 1 | 21.69 | 21.69 | 47.65 |
| 17/32 | .5312 | 4-13/16 | 6-5/8 | 1 | 22.33 | 22.33 | 49.10 |
| 35/64 | .5469 | 4-13/16 | 6-5/8 | 1 | 24.62 | 24.62 | 54.20 |
| 9/16 | .5625 | 4-13/16 | 6-5/8 | 1 | 25.28 | 25.28 | 55.62 |
| 37/64 | .5781 | 4-13/16 | 6-5/8 | 1 | 25.86 | 25.86 | 56.90 |
| 19/32 | .5938 | 5-3/16 | 7-1/8 | 1 | 26.55 | 26.55 | 58.50 |
| 39/64 | .6094 | 5-3/16 | 7-1/8 | 1 | 28.44 | 28.44 | 62.57 |
| 5/8 | .6250 | 5-3/16 | 7-1/8 | 1 | 27.92 | 27.92 | 61.40 |
| 41/64 | .6406 | 5-3/16 | 7-1/8 | 1 | 30.47 | 30.47 | 63.00 |
| 21/32 | .6562 | 5-3/16 | 7-1/8 | 1 | 31.94 | 31.94 | 69.00 |
| 43/64 | .6719 | 5-5/8 | 7-5/8 | 1 | 34.53 | 34.53 | 72.00 |
| 11/16 | .6875 | 5-5/8 | 7-5/8 | 1 | 34.53 | 34.53 | 72.00 |
| 23/32 | .7188 | 5-5/8 | 7-5/8 | 1 | 42.80 | 42.80 | 79.00 |
| 3/4 | .7500 | 5-5/8 | 7-5/8 | 1 | 45.37 | 45.37 | 85.00 |

LETTER SIZES

| Size | Dec. Equiv. | Flute Length | Overall Length | Pkg. Qty. | Price Each | | |
|------|-------------|--------------|----------------|-----------|------------------|--------------------|------------------------------|
| | | | | | Oxide Finish 300 | Bright Finish 300A | Titanium Nitride Coated 300T |
| A | .2340 | 2-5/8 | 3-7/8 | 12 | 3.74 | 3.74 | 7.80 |
| B | .2380 | 2-3/4 | 4 | 12 | 3.74 | 3.74 | 7.80 |
| C | .2420 | 2-3/4 | 4 | 12 | 3.74 | 3.74 | 7.80 |
| D | .2460 | 2-3/4 | 4 | 12 | 3.74 | 3.74 | 7.80 |
| E | .2500 | 2-3/4 | 4 | 12 | 2.99 | 2.99 | 7.29 |
| F | .2570 | 2-7/8 | 4-1/8 | 12 | 3.97 | 3.97 | 11.40 |
| G | .2610 | 2-7/8 | 4-1/8 | 12 | 4.47 | 4.47 | 11.40 |
| H | .2660 | 2-7/8 | 4-1/8 | 12 | 4.47 | 4.47 | 11.40 |
| I | .2720 | 2-7/8 | 4-1/8 | 6 | 4.47 | 4.47 | 11.40 |
| J | .2770 | 2-7/8 | 4-1/8 | 6 | 4.80 | 4.80 | 11.40 |
| K | .2810 | 2-15/16 | 4-1/4 | 6 | 5.30 | 5.30 | 11.40 |
| L | .2900 | 2-15/16 | 4-1/4 | 6 | 5.30 | 5.30 | 11.40 |
| M | .2950 | 3-1/16 | 4-3/8 | 6 | 5.60 | 5.60 | 11.92 |

| Size | Dec. Equiv. | Flute Length | Overall Length | Pkg. Qty. | Price Each | | |
|------|-------------|--------------|----------------|-----------|------------------|--------------------|------------------------------|
| | | | | | Oxide Finish 300 | Bright Finish 300A | Titanium Nitride Coated 300T |
| N | .3020 | 3-1/16 | 4-3/8 | 6 | 5.60 | 5.60 | 12.42 |
| O | .3160 | 3-3/16 | 4-1/2 | 6 | 5.67 | 5.67 | 12.42 |
| P | .3230 | 3-5/16 | 4-5/8 | 6 | 6.39 | 6.39 | 14.00 |
| Q | .3320 | 3-7/16 | 4-3/4 | 6 | 6.39 | 6.39 | 14.00 |
| R | .3390 | 3-7/16 | 4-3/4 | 6 | 6.84 | 6.84 | 14.00 |
| S | .3480 | 3-1/2 | 4-7/8 | 6 | 7.24 | 7.24 | 14.00 |
| T | .3580 | 3-1/2 | 4-7/8 | 6 | 8.24 | 8.24 | 18.10 |
| U | .3680 | 3-5/8 | 5 | 6 | 8.24 | 8.24 | 18.10 |
| V | .3770 | 3-5/8 | 5 | 6 | 8.47 | 8.47 | 20.85 |
| W | .3860 | 3-3/4 | 5-1/8 | 6 | 8.75 | 8.75 | 21.85 |
| X | .3970 | 3-3/4 | 5-1/8 | 6 | 10.61 | 10.61 | 22.05 |
| Y | .4040 | 3-7/8 | 5-1/4 | 6 | 11.92 | 11.92 | 22.50 |
| Z | .4130 | 3-7/8 | 5-1/4 | 6 | 12.69 | 12.69 | 23.70 |

JOBBER LENGTH DRILLS



GENERAL PURPOSE, 118° POINT

- ▶ LIST NO. 300 — OXIDE FINISH
- ▶ LIST NO. 300A — BRIGHT FINISH
- ▶ LIST NO. 300T — TITANIUM NITRIDE COATED

Please order in package quantity.



SET NO. 307V

20 Piece High Speed Surface Treated Set
No. 1 - 60 with Metal Index
SET PRICE — \$47.50

SET NO. 307VB

20 Piece Bright Finish Set
No. 61 - 80 with Metal Index
SET PRICE — \$47.50

SET NO. 307W

60 Piece High Speed Surface Treated Set
No. 1 - 60 with Metal Index
SET PRICE — \$123.00

SET NO. 307WB

60 Piece Bright Finish Set
No. 1 - 60 with Metal Index
SET PRICE — \$123.00

WIRE GAUGE SIZES

12 DRILLS PER PACKAGE

| Size | Dec. Equiv. | Flute Length | Overall Length | Price Each | | |
|------|-------------|--------------|----------------|------------------|--------------------|------------------------------|
| | | | | Oxide Finish 300 | Bright Finish 300A | Titanium Nitride Coated 300T |
| 1 | .2280 | 2-5/8 | 3-7/8 | 3.27 | 3.27 | 7.65 |
| 2 | .2210 | 2-5/8 | 3-7/8 | 3.31 | 3.31 | 7.65 |
| 3 | .2130 | 2-1/2 | 3-3/4 | 2.97 | 2.97 | 7.27 |
| 4 | .2090 | 2-1/2 | 3-3/4 | 3.02 | 3.02 | 7.27 |
| 5 | .2055 | 2-1/2 | 3-3/4 | 3.02 | 3.02 | 7.27 |
| 6 | .2040 | 2-1/2 | 3-3/4 | 3.02 | 3.02 | 7.27 |
| 7 | .2010 | 2-7/16 | 3-5/8 | 2.63 | 2.63 | 6.83 |
| 8 | .1990 | 2-7/16 | 3-5/8 | 2.66 | 2.66 | 6.83 |
| 9 | .1960 | 2-7/16 | 3-5/8 | 2.66 | 2.66 | 6.83 |
| 10 | .1935 | 2-7/16 | 3-5/8 | 2.64 | 2.64 | 6.83 |
| 11 | .1910 | 2-5/16 | 3-1/2 | 2.44 | 2.44 | 6.62 |
| 12 | .1890 | 2-5/16 | 3-1/2 | 2.46 | 2.46 | 6.62 |
| 13 | .1850 | 2-5/16 | 3-1/2 | 2.41 | 2.41 | 6.56 |
| 14 | .1820 | 2-3/16 | 3-3/8 | 2.41 | 2.41 | 6.56 |
| 15 | .1800 | 2-3/16 | 3-3/8 | 2.41 | 2.41 | 6.56 |
| 16 | .1770 | 2-3/16 | 3-3/8 | 2.41 | 2.41 | 6.56 |
| 17 | .1730 | 2-3/16 | 3-3/8 | 2.41 | 2.41 | 6.56 |
| 18 | .1695 | 2-1/8 | 3-1/4 | 2.00 | 2.00 | 6.05 |
| 19 | .1660 | 2-1/8 | 3-1/4 | 1.98 | 1.98 | 6.05 |
| 20 | .1610 | 2-1/8 | 3-1/4 | 1.98 | 1.98 | 6.05 |
| 21 | .1590 | 2-1/8 | 3-1/4 | 1.83 | 1.83 | 5.86 |
| 22 | .1570 | 2 | 3-1/8 | 1.85 | 1.85 | 5.86 |
| 23 | .1540 | 2 | 3-1/8 | 1.82 | 1.82 | 5.84 |
| 24 | .1520 | 2 | 3-1/8 | 1.82 | 1.82 | 5.84 |
| 25 | .1495 | 1-7/8 | 3 | 1.74 | 1.74 | 5.72 |
| 26 | .1470 | 1-7/8 | 3 | 1.76 | 1.76 | 5.72 |
| 27 | .1440 | 1-7/8 | 3 | 1.75 | 1.75 | 5.72 |
| 28 | .1405 | 1-3/4 | 2-7/8 | 1.61 | 1.61 | 5.57 |
| 29 | .1360 | 1-3/4 | 2-7/8 | 1.60 | 1.60 | 5.57 |
| 30 | .1285 | 1-5/8 | 2-3/4 | 1.60 | 1.60 | 5.57 |
| 31 | .1200 | 1-5/8 | 2-3/4 | 1.59 | 1.59 | 4.53 |
| 32 | .1160 | 1-5/8 | 2-3/4 | 1.59 | 1.59 | 4.53 |
| 33 | .1130 | 1-1/2 | 2-5/8 | 1.59 | 1.59 | 4.53 |
| 34 | .1110 | 1-1/2 | 2-5/8 | 1.59 | 1.59 | 4.53 |
| 35 | .1100 | 1-1/2 | 2-5/8 | 1.59 | 1.59 | 4.53 |
| 36 | .1065 | 1-7/16 | 2-1/2 | 1.59 | 1.59 | 4.53 |
| 37 | .1040 | 1-7/16 | 2-1/2 | 1.59 | 1.59 | 4.53 |
| 38 | .1015 | 1-7/16 | 2-1/2 | 1.59 | 1.59 | 4.53 |
| 39 | .0995 | 1-3/8 | 2-3/8 | 1.59 | 1.59 | 4.53 |
| 40 | .0980 | 1-3/8 | 2-3/8 | 1.59 | 1.59 | 4.53 |
| 41 | .0960 | 1-3/8 | 2-3/8 | 1.59 | 1.59 | 4.30 |
| 42 | .0935 | 1-1/4 | 2-1/4 | 1.59 | 1.59 | 4.30 |
| 43 | .0890 | 1-1/4 | 2-1/4 | 1.59 | 1.59 | 4.30 |
| 44 | .0860 | 1-1/8 | 2-1/8 | 1.59 | 1.59 | 4.30 |
| 45 | .0820 | 1-1/8 | 2-1/8 | 1.59 | 1.59 | 4.30 |
| 46 | .0810 | 1-1/8 | 2-1/8 | 1.59 | 1.59 | 4.30 |
| 47 | .0785 | 1 | 2 | 1.59 | 1.59 | 4.30 |
| 48 | .0760 | 1 | 2 | 1.59 | 1.59 | 4.30 |
| 49 | .0730 | 1 | 2 | 1.59 | 1.59 | 4.30 |

| Size | Dec. Equiv. | Flute Length | Overall Length | Price Each | | |
|------|-------------|--------------|----------------|------------------|--------------------|------------------------------|
| | | | | Oxide Finish 300 | Bright Finish 300A | Titanium Nitride Coated 300T |
| 50 | .0700 | 1 | 2 | 1.59 | 1.59 | 4.30 |
| 51 | .0670 | 1 | 2 | 1.59 | 1.59 | 4.30 |
| 52 | .0635 | 7/8 | 1-7/8 | 1.59 | 1.59 | 4.30 |
| 53 | .0595 | 7/8 | 1-7/8 | 1.59 | 1.59 | 4.30 |
| 54 | .0550 | 7/8 | 1-7/8 | 1.59 | 1.59 | 4.30 |
| 55 | .0520 | 7/8 | 1-7/8 | 1.59 | 1.59 | 4.30 |
| 56 | .0465 | 3/4 | 1-3/4 | 1.59 | 1.59 | 4.30 |
| 57 | .0430 | 3/4 | 1-3/4 | 1.59 | 1.59 | 4.30 |
| 58 | .0420 | 11/16 | 1-5/8 | 1.63 | 1.63 | 4.30 |
| 59 | .0410 | 11/16 | 1-5/8 | 1.63 | 1.63 | 4.30 |
| 60 | .0400 | 11/16 | 1-5/8 | 1.63 | 1.63 | 4.30 |
| 61 | .0390 | 11/16 | 1-5/8 | 1.73 | 1.73 | 4.40 |
| 62 | .0380 | 5/8 | 1-1/2 | 1.73 | 1.73 | 4.40 |
| 63 | .0370 | 5/8 | 1-1/2 | 1.73 | 1.73 | 4.40 |
| 64 | .0360 | 5/8 | 1-1/2 | 1.73 | 1.73 | 4.40 |
| 65 | .0350 | 5/8 | 1-1/2 | 1.73 | 1.73 | 4.40 |
| 66 | .0330 | 1/2 | 1-3/8 | 1.73 | 1.73 | 4.40 |
| 67 | .0320 | 1/2 | 1-3/8 | 1.73 | 1.73 | 4.40 |
| 68 | .0310 | 1/2 | 1-3/8 | 1.73 | 1.73 | 4.40 |
| 69 | .0292 | 1/2 | 1-3/8 | 1.89 | 1.89 | 4.50 |
| 70 | .0280 | 3/8 | 1-1/4 | 1.89 | 1.89 | 4.50 |
| 71 | .0260 | 3/8 | 1-1/4 | 2.36 | 2.36 | 5.70 |
| 72 | .0250 | 5/16 | 1-1/8 | 2.36 | 2.36 | 5.70 |
| 73 | .0240 | 5/16 | 1-1/8 | 2.36 | 2.36 | 5.70 |
| 74 | .0225 | 1/4 | 1 | 2.36 | 2.36 | 5.70 |
| 75 | .0210 | 1/4 | 1 | 2.36 | 2.36 | 5.70 |
| 76 | .0200 | 3/16 | 7/8 | 2.36 | 2.36 | 5.70 |
| 77 | .0180 | 3/16 | 7/8 | 2.36 | 2.36 | 5.70 |
| 78 | .0160 | 3/16 | 7/8 | 2.36 | 2.36 | 5.70 |
| 79 | .0145 | 1/8 | 3/4 | 2.83 | 2.83 | 6.03 |
| 80 | .0135 | 1/8 | 3/4 | 2.83 | 2.83 | 6.03 |
| 81 | .0130 | 3/32 | 3/4 | — | 5.74 | — |
| 82 | .0125 | 3/32 | 3/4 | — | 5.74 | — |
| 83 | .0120 | 3/32 | 3/4 | — | 6.61 | — |
| 84 | .0115 | 3/32 | 3/4 | — | 6.61 | — |
| 85 | .0110 | 5/64 | 3/4 | — | 6.61 | — |
| 86 | .0105 | 5/64 | 3/4 | — | 7.32 | — |
| 87 | .0100 | 5/64 | 3/4 | — | 7.32 | — |
| 88 | .0095 | 5/64 | 3/4 | — | 9.28 | — |
| 89 | .0091 | 1/16 | 3/4 | — | 9.28 | — |
| 90 | .0087 | 1/16 | 3/4 | — | 9.28 | — |
| 91 | .0083 | 1/16 | 3/4 | — | 9.28 | — |
| 92 | .0079 | 1/16 | 3/4 | — | 9.28 | — |
| 93 | .0075 | 1/16 | 3/4 | — | 9.28 | — |
| 94 | .0071 | 1/16 | 3/4 | — | 13.36 | — |
| 95 | .0067 | 1/16 | 3/4 | — | 13.36 | — |
| 96 | .0063 | 3/64 | 3/4 | — | 14.71 | — |
| 97 | .0059 | 3/64 | 3/4 | — | 14.71 | — |

◆ PIN CHUCK SET SET NO. PV30

Designed for holding small drills
One Pin Chuck with 3
interchangeable collets
0 - 1/32, 1/32 - 1/16, 1/16 - 3/32
SET PRICE — \$7.45



◆ MICRO CHUCK TOOL NO. PV10

Suitable for 61-80 drills
Can be held in any
1/8 or 3/16 collet or
larger adjustable drill chuck.
PRICE EACH — \$5.90





HIGH SPEED STEEL

JOBBER LENGTH DRILLS

A.I.A. (NAS907) — STANDARD — OXIDE FINISH

AIRCRAFT TYPE "A" AND "B"

- ▶ LIST NO. 300SA* – TYPE "A", 118° SPLIT POINT, NORMAL WEB CONSTRUCTION
- ▶ LIST NO. 300SB* – TYPE "B", 135° SPLIT POINT, HEAVY DUTY WEB CONSTRUCTION

Please order in package quantity.



AIRCRAFT TYPE "A"

Type "A" drills are made with 118° split points and a normal web construction which allows easier penetration than Type "B".

AIRCRAFT TYPE "B"

Type "B" drills are made with a heavy web construction and may be used with heavier feeds in harder materials. Because of torsional strength and a 135° split point, this drill is popular in hand held drilling applications to reduce breakage and eliminate skidding or walking.

SET NO. 307FH

29 Piece Fractional Jobber Set
135° Split Point, Heavy Duty
1/16 - 1/2 x 64ths in Metal Index
SET PRICE — \$179.00

SET NO. 307FHA

29 Piece Fractional Jobber Set
118° Split Point, Heavy Duty
1/16 - 1/2 x 64ths in Metal Index
SET PRICE — \$179.00

FRACTIONAL SIZES

| Size | Dec. Equiv. | Flute Length | Overall Length | Pkg. Qty. | Price Each |
|-------|-------------|--------------|----------------|-----------|------------|
| 3/64 | .0469 | 3/4 | 1-3/4 | 12 | 1.72 |
| 1/16 | .0625 | 7/8 | 1-7/8 | 12 | 1.67 |
| 5/64 | .0781 | 1 | 2 | 12 | 1.67 |
| 3/32 | .0938 | 1-1/4 | 2-1/4 | 12 | 1.67 |
| 7/64 | .1094 | 1-1/2 | 2-5/8 | 12 | 1.86 |
| 1/8 | .1250 | 1-5/8 | 2-3/4 | 12 | 1.92 |
| 9/64 | .1406 | 1-3/4 | 2-7/8 | 12 | 1.97 |
| 5/32 | .1562 | 2 | 3-1/8 | 12 | 2.00 |
| 11/64 | .1719 | 2-1/8 | 3-1/4 | 12 | 2.15 |
| 3/16 | .1875 | 2-5/16 | 3-1/2 | 12 | 2.40 |

| Size | Dec. Equiv. | Flute Length | Overall Length | Pkg. Qty. | Price Each |
|-------|-------------|--------------|----------------|-----------|------------|
| 13/64 | .2031 | 2-7/16 | 3-5/8 | 12 | 2.67 |
| 7/32 | .2188 | 2-1/2 | 3-3/4 | 12 | 3.06 |
| 15/64 | .2344 | 2-5/8 | 3-7/8 | 12 | 3.41 |
| 1/4 | .2500 | 2-3/4 | 4 | 12 | 3.52 |
| 17/64 | .2656 | 2-7/8 | 4-1/8 | 12 | 4.20 |
| 9/32 | .2812 | 2-15/16 | 4-1/4 | 6 | 4.22 |
| 19/64 | .2969 | 3-1/16 | 4-3/8 | 6 | 5.12 |
| 5/16 | .3125 | 3-3/16 | 4-1/2 | 6 | 5.40 |
| 21/64 | .3281 | 3-5/16 | 4-5/8 | 6 | 6.23 |
| 11/32 | .3438 | 3-7/16 | 4-3/4 | 6 | 6.80 |

| Size | Dec. Equiv. | Flute Length | Overall Length | Pkg. Qty. | Price Each |
|-------|-------------|--------------|----------------|-----------|------------|
| 23/64 | .3594 | 3-1/2 | 4-7/8 | 6 | 7.83 |
| 3/8 | .3750 | 3-5/8 | 5 | 6 | 7.70 |
| 25/64 | .3906 | 3-3/4 | 5-1/8 | 6 | 8.96 |
| 13/32 | .4062 | 3-7/8 | 5-1/4 | 6 | 9.09 |
| 27/64 | .4219 | 3-15/16 | 5-3/8 | 6 | 10.36 |
| 7/16 | .4375 | 4-1/16 | 5-1/2 | 6 | 10.44 |
| 29/64 | .4531 | 4-3/16 | 5-5/8 | 6 | 12.05 |
| 15/32 | .4688 | 4-5/16 | 5-3/4 | 6 | 12.44 |
| 31/64 | .4844 | 4-3/8 | 5-7/8 | 6 | 13.41 |
| 1/2 | .5000 | 4-1/2 | 6 | 6 | 13.15 |

LETTER SIZES

| Size | Dec. Equiv. | Flute Length | Overall Length | Pkg. Qty. | Price Each |
|------|-------------|--------------|----------------|-----------|------------|
| A | .2340 | 2-5/8 | 3-7/8 | 12 | 4.16 |
| B | .2380 | 2-3/4 | 4 | 12 | 4.16 |
| C | .2420 | 2-3/4 | 4 | 12 | 4.16 |
| D | .2460 | 2-3/4 | 4 | 12 | 4.16 |
| E | .2500 | 2-3/4 | 4 | 12 | 3.52 |
| F | .2570 | 2-7/8 | 4-1/8 | 12 | 4.25 |
| G | .2610 | 2-7/8 | 4-1/8 | 12 | 4.81 |
| H | .2660 | 2-7/8 | 4-1/8 | 12 | 5.03 |
| I | .2720 | 2-7/8 | 4-1/8 | 6 | 5.03 |

| Size | Dec. Equiv. | Flute Length | Overall Length | Pkg. Qty. | Price Each |
|------|-------------|--------------|----------------|-----------|------------|
| J | .2770 | 2-7/8 | 4-1/8 | 6 | 5.19 |
| K | .2810 | 2-15/16 | 4-1/4 | 6 | 5.67 |
| L | .2900 | 2-15/16 | 4-1/4 | 6 | 6.67 |
| M | .2950 | 3-1/16 | 4-3/8 | 6 | 6.39 |
| N | .3020 | 3-1/16 | 4-3/8 | 6 | 6.23 |
| O | .3160 | 3-3/16 | 4-1/2 | 6 | 6.36 |
| P | .3230 | 3-5/16 | 4-5/8 | 6 | 6.99 |
| Q | .3320 | 3-7/16 | 4-3/4 | 6 | 7.13 |
| R | .3390 | 3-7/16 | 4-3/4 | 6 | 7.46 |

| Size | Dec. Equiv. | Flute Length | Overall Length | Pkg. Qty. | Price Each |
|------|-------------|--------------|----------------|-----------|------------|
| S | .3480 | 3-1/2 | 4-7/8 | 6 | 8.05 |
| T | .3580 | 3-1/2 | 4-7/8 | 6 | 8.84 |
| U | .3680 | 3-5/8 | 5 | 6 | 8.84 |
| V | .3770 | 3-5/8 | 5 | 6 | 9.23 |
| W | .3860 | 3-3/4 | 5-1/8 | 6 | 9.61 |
| X | .3970 | 3-3/4 | 5-1/8 | 6 | 11.54 |
| Y | .4040 | 3-7/8 | 5-1/4 | 6 | 13.48 |
| Z | .4130 | 3-7/8 | 5-1/4 | 6 | 13.79 |

WIRE GAUGE SIZES

| Size | Dec. Equiv. | Flute Length | Overall Length | Pkg. Qty. | Price Each |
|------|-------------|--------------|----------------|-----------|------------|
| 1 | .2280 | 2-5/8 | 3-7/8 | 12 | 3.59 |
| 2 | .2210 | 2-5/8 | 3-7/8 | 12 | 3.59 |
| 3 | .2130 | 2-1/2 | 3-3/4 | 12 | 3.24 |
| 4 | .2090 | 2-1/2 | 3-3/4 | 12 | 3.31 |
| 5 | .2055 | 2-1/2 | 3-3/4 | 12 | 3.24 |
| 6 | .2040 | 2-1/2 | 3-3/4 | 12 | 3.24 |
| 7 | .2010 | 2-7/16 | 3-5/8 | 12 | 2.90 |
| 8 | .1990 | 2-7/16 | 3-5/8 | 12 | 2.90 |
| 9 | .1960 | 2-7/16 | 3-5/8 | 12 | 2.90 |
| 10 | .1935 | 2-7/16 | 3-5/8 | 12 | 2.90 |
| 11 | .1910 | 2-5/16 | 3-1/2 | 12 | 2.71 |
| 12 | .1890 | 2-5/16 | 3-1/2 | 12 | 2.71 |
| 13 | .1850 | 2-5/16 | 3-1/2 | 12 | 2.65 |
| 14 | .1820 | 2-3/16 | 3-3/8 | 12 | 2.65 |
| 15 | .1800 | 2-3/16 | 3-3/8 | 12 | 2.66 |
| 16 | .1770 | 2-3/16 | 3-3/8 | 12 | 2.65 |
| 17 | .1730 | 2-3/16 | 3-3/8 | 12 | 2.66 |
| 18 | .1695 | 2-1/8 | 3-1/4 | 12 | 2.18 |
| 19 | .1660 | 2-1/8 | 3-1/4 | 12 | 2.15 |
| 20 | .1610 | 2-1/8 | 3-1/4 | 12 | 2.15 |

| Size | Dec. Equiv. | Flute Length | Overall Length | Pkg. Qty. | Price Each |
|------|-------------|--------------|----------------|-----------|------------|
| 21 | .1590 | 2-1/8 | 3-1/4 | 12 | 2.02 |
| 22 | .1570 | 2 | 3-1/8 | 12 | 2.05 |
| 23 | .1540 | 2 | 3-1/8 | 12 | 2.02 |
| 24 | .1520 | 2 | 3-1/8 | 12 | 2.02 |
| 25 | .1495 | 1-7/8 | 3 | 12 | 1.99 |
| 26 | .1470 | 1-7/8 | 3 | 12 | 1.99 |
| 27 | .1440 | 1-7/8 | 3 | 12 | 1.98 |
| 28 | .1405 | 1-3/4 | 2-7/8 | 12 | 1.78 |
| 29 | .1360 | 1-3/4 | 2-7/8 | 12 | 1.78 |
| 30 | .1285 | 1-5/8 | 2-3/4 | 12 | 1.75 |
| 31 | .1200 | 1-5/8 | 2-3/4 | 12 | 1.78 |
| 32 | .1160 | 1-5/8 | 2-3/4 | 12 | 1.78 |
| 33 | .1130 | 1-1/2 | 2-5/8 | 12 | 1.78 |
| 34 | .1110 | 1-1/2 | 2-5/8 | 12 | 1.78 |
| 35 | .1100 | 1-1/2 | 2-5/8 | 12 | 1.78 |
| 36 | .1065 | 1-7/16 | 2-1/2 | 12 | 1.78 |
| 37 | .1040 | 1-7/16 | 2-1/2 | 12 | 1.78 |
| 38 | .1015 | 1-7/16 | 2-1/2 | 12 | 1.78 |
| 39 | .0995 | 1-3/8 | 2-3/8 | 12 | 1.78 |
| 40 | .0980 | 1-3/8 | 2-3/8 | 12 | 1.75 |

| Size | Dec. Equiv. | Flute Length | Overall Length | Pkg. Qty. | Price Each |
|------|-------------|--------------|----------------|-----------|------------|
| 41 | .0960 | 1-3/8 | 2-3/8 | 12 | 1.78 |
| 42 | .0935 | 1-1/4 | 2-1/4 | 12 | 1.78 |
| 43 | .0890 | 1-1/4 | 2-1/4 | 12 | 1.78 |
| 44 | .0860 | 1-1/8 | 2-1/8 | 12 | 1.78 |
| 45 | .0820 | 1-1/8 | 2-1/8 | 12 | 1.78 |
| 46 | .0810 | 1-1/8 | 2-1/8 | 12 | 1.78 |
| 47 | .0785 | 1 | 2 | 12 | 1.78 |
| 48 | .0760 | 1 | 2 | 12 | 1.78 |
| 49 | .0730 | 1 | 2 | 12 | 1.78 |
| 50 | .0700 | 1 | 2 | 12 | 1.78 |
| 51 | .0670 | 1 | 2 | 12 | 1.78 |
| 52 | .0635 | 7/8 | 1-7/8 | 12 | 1.78 |
| 53 | .0595 | 7/8 | 1-7/8 | 12 | 1.94 |
| 54 | .0550 | 7/8 | 1-7/8 | 12 | 1.94 |
| 55 | .0520 | 7/8 | 1-7/8 | 12 | 1.94 |
| 56 | .0465 | 3/4 | 1-3/4 | 12 | 1.94 |
| 57 | .0430 | 3/4 | 1-3/4 | 12 | 1.94 |
| 58 | .0420 | 11/16 | 1-5/8 | 12 | 1.94 |
| 59 | .0410 | 11/16 | 1-5/8 | 12 | 1.94 |
| 60 | .0400 | 11/16 | 1-5/8 | 12 | 1.94 |

*Sizes smaller than 1/16 and #52 are NOT Split.



BLIZZARD BIT™



MADE OF PREMIUM HIGH SPEED STEEL

"You have seen the rest, now try the best"

135° SPLIT POINT HEAVY DUTY JOBBER LENGTH DRILL

● LIST NO. 300Q



- Tests show the "BLIZZARD BIT" out performs all other high speed steel 135° split point heavy duty drills.
- Made of proprietary steel that keeps the drill cooler than all other high speed steels.
- Runs at higher feeds and speeds than other high speed steel drills.
- Priced at high speed but performs similarly to cobalt.
- Improved lubricity of the drill, due to a special oxide and gold finish.
- Centers quickly with 135° split point.
- Heavy duty construction allows for hand held jobs or shop production.

| Size | Dec. Equiv. | Flute Length | Overall Length | Pkg. Qty. | Price Each | Size | Dec. Equiv. | Flute Length | Overall Length | Pkg. Qty. | Price Each | Size | Dec. Equiv. | Flute Length | Overall Length | Pkg. Qty. | Price Each |
|-------|-------------|--------------|----------------|-----------|------------|-------|-------------|--------------|----------------|-----------|------------|-------|-------------|--------------|----------------|-----------|------------|
| 1/16 | .0625 | 7/8 | 1-7/8 | 12 | 1.59 | 7/32 | .2188 | 2-1/2 | 3-3/4 | 12 | 3.42 | 3/8 | .3750 | 3-5/8 | 5 | 6 | 8.76 |
| 5/64 | .0781 | 1 | 2 | 12 | 1.78 | 15/64 | .2344 | 2-5/8 | 3-7/8 | 12 | 3.61 | 25/64 | .3906 | 3-3/4 | 5-1/8 | 6 | 10.27 |
| 3/32 | .0938 | 1-1/4 | 2-1/4 | 12 | 1.78 | 1/4 | .2500 | 2-3/4 | 4 | 12 | 3.88 | 13/32 | .4062 | 3-7/8 | 5-1/4 | 6 | 10.59 |
| 7/64 | .1094 | 1-1/2 | 2-5/8 | 12 | 1.78 | 17/64 | .2656 | 2-7/8 | 4-1/8 | 12 | 4.74 | 27/64 | .4219 | 3-15/16 | 5-3/8 | 6 | 11.69 |
| 1/8 | .1250 | 1-5/8 | 2-3/4 | 12 | 2.05 | 9/32 | .2812 | 2-15/16 | 4-1/4 | 6 | 5.71 | 7/16 | .4375 | 4-1/16 | 5-1/2 | 6 | 12.61 |
| 9/64 | .1406 | 1-3/4 | 2-7/8 | 12 | 2.05 | 19/64 | .2969 | 3-1/16 | 4-3/8 | 6 | 6.16 | 29/64 | .4531 | 4-3/16 | 5-5/8 | 6 | 14.43 |
| 5/32 | .1562 | 2 | 3-1/8 | 12 | 2.33 | 5/16 | .3125 | 3-3/16 | 4-1/2 | 6 | 6.35 | 15/32 | .4688 | 4-5/16 | 5-3/4 | 6 | 14.79 |
| 11/64 | .1719 | 2-1/8 | 3-1/4 | 12 | 2.37 | 21/64 | .3281 | 3-5/16 | 4-5/8 | 6 | 6.99 | 31/64 | .4844 | 4-3/8 | 5-7/8 | 6 | 14.79 |
| 3/16 | .1875 | 2-5/16 | 3-1/2 | 12 | 2.78 | 11/32 | .3438 | 3-7/16 | 4-3/4 | 6 | 7.77 | 1/2 | .5000 | 4-1/2 | 6 | 6 | 15.48 |
| 13/64 | .2031 | 2-7/16 | 3-5/8 | 12 | 3.10 | 23/64 | .3594 | 3-1/2 | 4-7/8 | 6 | 8.68 | | | | | | |

HIGH SPEED STEEL

PRODUCTION MAX™

TIGHT TOLERANCE DRILLS 118° SPLIT POINT BLACK AND GOLD DOUBLE MARGIN JOBBER LENGTH DRILL

● LIST NO. 314

- Precision hole drilling.
- Oxide and gold modified 118° split point for reduced thrust, quick centering.
- Produces straighter, rounder holes with up to 300% tighter hole tolerances.
- Eliminates reaming in some applications.
- Not recommended for hand held drilling.



| Size | Dec. Equiv. | Flute Length | Overall Length | Pkg. Qty. | Price Each | Size | Dec. Equiv. | Flute Length | Overall Length | Pkg. Qty. | Price Each | Size | Dec. Equiv. | Flute Length | Overall Length | Pkg. Qty. | Price Each |
|--------|-------------|--------------|----------------|-----------|------------|-------|-------------|--------------|----------------|-----------|------------|-------|-------------|--------------|----------------|-----------|------------|
| 1/16* | .0625 | 7/8 | 1-7/8 | 12 | 1.75 | 7/32 | .2188 | 2-1/2 | 3-3/4 | 12 | 3.28 | 3/8 | .3750 | 3-5/8 | 5 | 6 | 8.49 |
| 5/64* | .0781 | 1 | 2 | 12 | 1.75 | 15/64 | .2344 | 2-5/8 | 3-7/8 | 12 | 3.52 | 25/64 | .3906 | 3-3/4 | 5-1/8 | 6 | 9.38 |
| 3/32* | .0938 | 1-1/4 | 2-1/4 | 12 | 1.75 | 1/4 | .2500 | 2-3/4 | 4 | 12 | 3.65 | 13/32 | .4062 | 3-7/8 | 5-1/4 | 6 | 9.77 |
| 7/64* | .1094 | 1-1/2 | 2-5/8 | 12 | 1.82 | 17/64 | .2656 | 2-7/8 | 4-1/8 | 12 | 4.66 | 27/64 | .4219 | 3-15/16 | 5-3/8 | 6 | 10.73 |
| 1/8* | .1250 | 1-5/8 | 2-3/4 | 12 | 2.00 | 9/32 | .2812 | 2-15/16 | 4-1/4 | 6 | 5.01 | 7/16 | .4375 | 4-1/16 | 5-1/2 | 6 | 11.32 |
| 9/64* | .1406 | 1-3/4 | 2-7/8 | 12 | 2.21 | 19/64 | .2969 | 3-1/16 | 4-3/8 | 6 | 5.60 | 29/64 | .4531 | 4-3/16 | 5-5/8 | 6 | 12.56 |
| 5/32* | .1562 | 2 | 3-1/8 | 12 | 2.30 | 5/16 | .3125 | 3-3/16 | 4-1/2 | 6 | 5.87 | 15/32 | .4688 | 4-5/16 | 5-3/4 | 6 | 13.57 |
| 11/64* | .1719 | 2-1/8 | 3-1/4 | 12 | 2.47 | 21/64 | .3281 | 3-5/16 | 4-5/8 | 6 | 6.49 | 31/64 | .4844 | 4-3/8 | 5-7/8 | 6 | 14.10 |
| 3/16 | .1875 | 2-5/16 | 3-1/2 | 12 | 2.65 | 11/32 | .3438 | 3-7/16 | 4-3/4 | 6 | 7.19 | 1/2 | .5000 | 4-1/2 | 6 | 6 | 14.39 |
| 13/64 | .2031 | 2-7/16 | 3-5/8 | 12 | 3.12 | 23/64 | .3594 | 3-1/2 | 4-7/8 | 6 | 8.00 | | | | | | |

* Size not Double Margin.

Available in Titanium Coating for increased lubricity and extended wear.



SETS

| Description | Pieces Per Set | PRODUCTION MAX™ SET No. | Price Each | BLIZZARD™ SET No. | Price Each |
|--------------------------------|----------------|-------------------------|------------|-------------------|------------|
| Fractional 1/16 — 1/2 by 64ths | 29 | 314S29 | 188.00 | 307FQ | 201.00 |
| Fractional 1/16 — 1/4 by 64ths | 13 | 314S13 | 36.00 | 307GQ | 36.77 |
| Fractional 1/16 — 3/8 by 64ths | 21 | 314S21 | 107.00 | 307SQ | 95.83 |
| Fractional 1/16 — 1/2 by 32nds | 15 | 314S15 | 100.00 | 307RQ | 107.29 |



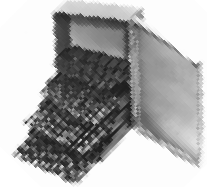
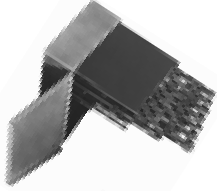
COBALT

COBALT JOBBER LENGTH DRILL

HEAVY DUTY — 135° SPLIT POINT - TYPE J

▶ LIST NO. 300C* — SUPER COBALT

Please order in package quantity.



SET NO. 307CF

29 Piece Cobalt Fractional
Jobber Drill Set
1/16 - 1/2 x 64ths in Metal Index
SET PRICE — \$288.00

Cobalt drills display higher red hardness and are especially effective in drilling hard or abrasive materials.

SET NO. 307CW
60 Piece Cobalt Wire Gauge
Jobber Drill Set
No. 1- 60 in Metal Index
SET PRICE — \$222.00

FRACTIONAL SIZES

| Size | Dec. Equiv. | Flute Length | Overall Length | Pkg. Qty. | Price Each |
|-------|-------------|--------------|----------------|-----------|------------|
| 1/64 | .0156 | 3/16 | 3/4 | 12 | 4.19 |
| 1/32 | .0312 | 1/2 | 1-3/8 | 12 | 3.63 |
| 3/64 | .0469 | 3/4 | 1-3/4 | 12 | 2.63 |
| 1/16 | .0625 | 7/8 | 1-7/8 | 12 | 2.50 |
| 5/64 | .0781 | 1 | 2 | 12 | 2.50 |
| 3/32 | .0938 | 1-1/4 | 2-1/4 | 12 | 2.50 |
| 7/64 | .1094 | 1-1/2 | 2-5/8 | 12 | 2.63 |
| 1/8 | .1250 | 1-5/8 | 2-3/4 | 12 | 3.20 |
| 9/64 | .1406 | 1-3/4 | 2-7/8 | 12 | 3.20 |
| 5/32 | .1562 | 2 | 3-1/8 | 12 | 3.57 |
| 11/64 | .1719 | 2-1/8 | 3-1/4 | 12 | 3.83 |
| 3/16 | .1875 | 2-5/16 | 3-1/2 | 12 | 4.28 |
| 13/64 | .2031 | 2-7/16 | 3-5/8 | 12 | 4.87 |
| 7/32 | .2188 | 2-1/2 | 3-3/4 | 12 | 5.33 |
| 15/64 | .2344 | 2-5/8 | 3-7/8 | 12 | 5.67 |

| Size | Dec. Equiv. | Flute Length | Overall Length | Pkg. Qty. | Price Each |
|-------|-------------|--------------|----------------|-----------|------------|
| 1/4 | .2500 | 2-3/4 | 4 | 12 | 5.99 |
| 17/64 | .2656 | 2-7/8 | 4-1/8 | 12 | 6.90 |
| 9/32 | .2812 | 2-15/16 | 4-1/4 | 6 | 7.20 |
| 19/64 | .2969 | 3-1/16 | 4-3/8 | 6 | 8.61 |
| 5/16 | .3125 | 3-3/16 | 4-1/2 | 6 | 9.20 |
| 21/64 | .3281 | 3-5/16 | 4-5/8 | 6 | 10.14 |
| 11/32 | .3438 | 3-7/16 | 4-3/4 | 6 | 11.10 |
| 23/64 | .3594 | 3-1/2 | 4-7/8 | 6 | 13.07 |
| 3/8 | .3750 | 3-5/8 | 5 | 6 | 12.73 |
| 25/64 | .3906 | 3-3/4 | 5-1/8 | 6 | 14.57 |
| 13/32 | .4062 | 3-7/8 | 5-1/4 | 6 | 15.17 |
| 27/64 | .4219 | 3-15/16 | 5-3/8 | 6 | 16.77 |
| 7/16 | .4375 | 4-1/16 | 5-1/2 | 6 | 17.17 |
| 29/64 | .4531 | 4-3/16 | 5-5/8 | 6 | 20.58 |
| 15/32 | .4688 | 4-5/16 | 5-3/4 | 6 | 20.93 |

| Size | Dec. Equiv. | Flute Length | Overall Length | Pkg. Qty. | Price Each |
|-------|-------------|--------------|----------------|-----------|------------|
| 31/64 | .4844 | 4-3/8 | 5-7/8 | 6 | 22.70 |
| 1/2 | .5000 | 4-1/2 | 6 | 6 | 21.60 |
| 33/64 | .5156 | 4-13/16 | 6-5/8 | 1 | 41.80 |
| 17/32 | .5312 | 4-13/16 | 6-5/8 | 1 | 43.93 |
| 35/64 | .5469 | 4-13/16 | 6-5/8 | 1 | 47.77 |
| 9/16 | .5625 | 4-13/16 | 6-5/8 | 1 | 49.95 |
| 37/64 | .5781 | 4-13/16 | 6-5/8 | 1 | 51.20 |
| 19/32 | .5938 | 5-3/16 | 7-1/8 | 1 | 51.90 |
| 39/64 | .6094 | 5-3/16 | 7-1/8 | 1 | 55.13 |
| 5/8 | .6250 | 5-3/16 | 7-1/8 | 1 | 55.13 |
| 41/64 | .6406 | 5-3/16 | 7-1/8 | 1 | 59.10 |
| 21/32 | .6562 | 5-3/16 | 7-1/8 | 1 | 62.00 |
| 43/64 | .6719 | 5-5/8 | 7-5/8 | 1 | 66.87 |
| 11/16 | .6875 | 5-5/8 | 7-5/8 | 1 | 66.87 |

LETTER SIZES

| Size | Dec. Equiv. | Flute Length | Overall Length | Pkg. Qty. | Price Each |
|------|-------------|--------------|----------------|-----------|------------|
| A | .2340 | 2-5/8 | 3-7/8 | 12 | 6.97 |
| B | .2380 | 2-3/4 | 4 | 12 | 7.25 |
| C | .2420 | 2-3/4 | 4 | 12 | 7.25 |
| D | .2460 | 2-3/4 | 4 | 12 | 8.16 |
| E | .2500 | 2-3/4 | 4 | 12 | 5.99 |
| F | .2570 | 2-7/8 | 4-1/8 | 12 | 7.19 |
| G | .2610 | 2-7/8 | 4-1/8 | 12 | 7.25 |
| H | .2660 | 2-7/8 | 4-1/8 | 12 | 8.16 |
| I | .2720 | 2-7/8 | 4-1/8 | 6 | 7.64 |

| Size | Dec. Equiv. | Flute Length | Overall Length | Pkg. Qty. | Price Each |
|------|-------------|--------------|----------------|-----------|------------|
| J | .2770 | 2-7/8 | 4-1/8 | 6 | 8.16 |
| K | .2810 | 2-15/16 | 4-1/4 | 6 | 8.16 |
| L | .2900 | 2-15/16 | 4-1/4 | 6 | 9.26 |
| M | .2950 | 3-1/16 | 4-3/8 | 6 | 9.84 |
| N | .3020 | 3-1/16 | 4-3/8 | 6 | 9.84 |
| O | .3160 | 3-3/16 | 4-1/2 | 6 | 10.86 |
| P | .3230 | 3-5/16 | 4-5/8 | 6 | 11.54 |
| Q | .3320 | 3-7/16 | 4-3/4 | 6 | 11.96 |
| R | .3390 | 3-7/16 | 4-3/4 | 6 | 11.96 |

| Size | Dec. Equiv. | Flute Length | Overall Length | Pkg. Qty. | Price Each |
|------|-------------|--------------|----------------|-----------|------------|
| S | .3480 | 3-1/2 | 4-7/8 | 6 | 14.65 |
| T | .3580 | 3-1/2 | 4-7/8 | 6 | 14.65 |
| U | .3680 | 3-5/8 | 5 | 6 | 14.65 |
| V | .3770 | 3-5/8 | 5 | 6 | 16.17 |
| W | .3860 | 3-3/4 | 5-1/8 | 6 | 16.17 |
| X | .3970 | 3-3/4 | 5-1/8 | 6 | 16.17 |
| Y | .4040 | 3-7/8 | 5-1/4 | 6 | 17.13 |
| Z | .4130 | 3-7/8 | 5-1/4 | 6 | 18.64 |

WIRE GAUGE SIZES

| Size | Dec. Equiv. | Flute Length | Overall Length | Pkg. Qty. | Price Each |
|------|-------------|--------------|----------------|-----------|------------|
| 1 | .2280 | 2-5/8 | 3-7/8 | 12 | 6.60 |
| 2 | .2210 | 2-5/8 | 3-7/8 | 12 | 6.60 |
| 3 | .2130 | 2-1/2 | 3-3/4 | 12 | 5.89 |
| 4 | .2090 | 2-1/2 | 3-3/4 | 12 | 5.89 |
| 5 | .2055 | 2-1/2 | 3-3/4 | 12 | 5.89 |
| 6 | .2040 | 2-1/2 | 3-3/4 | 12 | 5.89 |
| 7 | .2010 | 2-7/16 | 3-5/8 | 12 | 5.08 |
| 8 | .1990 | 2-7/16 | 3-5/8 | 12 | 5.08 |
| 9 | .1960 | 2-7/16 | 3-5/8 | 12 | 5.08 |
| 10 | .1935 | 2-7/16 | 3-5/8 | 12 | 4.83 |
| 11 | .1910 | 2-5/16 | 3-1/2 | 12 | 4.83 |
| 12 | .1890 | 2-5/16 | 3-1/2 | 12 | 4.83 |
| 13 | .1850 | 2-5/16 | 3-1/2 | 12 | 4.63 |
| 14 | .1820 | 2-3/16 | 3-3/8 | 12 | 4.63 |
| 15 | .1800 | 2-3/16 | 3-3/8 | 12 | 4.63 |
| 16 | .1770 | 2-3/16 | 3-3/8 | 12 | 4.44 |
| 17 | .1730 | 2-3/16 | 3-3/8 | 12 | 4.20 |
| 18 | .1695 | 2-1/8 | 3-1/4 | 12 | 3.80 |
| 19 | .1660 | 2-1/8 | 3-1/4 | 12 | 3.70 |
| 20 | .1610 | 2-1/8 | 3-1/4 | 12 | 3.70 |
| 21 | .1590 | 2-1/8 | 3-1/4 | 12 | 3.70 |
| 22 | .1570 | 2 | 3-1/8 | 12 | 3.70 |
| 23 | .1540 | 2 | 3-1/8 | 12 | 3.70 |
| 24 | .1520 | 2 | 3-1/8 | 12 | 3.70 |
| 25 | .1495 | 1-7/8 | 3 | 12 | 3.43 |
| 26 | .1470 | 1-7/8 | 3 | 12 | 3.37 |
| 27 | .1440 | 1-7/8 | 3 | 12 | 3.37 |

| Size | Dec. Equiv. | Flute Length | Overall Length | Pkg. Qty. | Price Each |
|------|-------------|--------------|----------------|-----------|------------|
| 28 | .1405 | 1-3/4 | 2-7/8 | 12 | 3.70 |
| 29 | .1360 | 1-3/4 | 2-7/8 | 12 | 2.90 |
| 30 | .1285 | 1-5/8 | 2-3/4 | 12 | 2.90 |
| 31 | .1200 | 1-5/8 | 2-3/4 | 12 | 2.90 |
| 32 | .1160 | 1-5/8 | 2-3/4 | 12 | 2.85 |
| 33 | .1130 | 1-1/2 | 2-5/8 | 12 | 2.70 |
| 34 | .1110 | 1-1/2 | 2-5/8 | 12 | 2.70 |
| 35 | .1100 | 1-1/2 | 2-5/8 | 12 | 2.70 |
| 36 | .1065 | 1-7/16 | 2-1/2 | 12 | 2.70 |
| 37 | .1040 | 1-7/16 | 2-1/2 | 12 | 2.70 |
| 38 | .1015 | 1-7/16 | 2-1/2 | 12 | 2.57 |
| 39 | .0995 | 1-3/8 | 2-3/8 | 12 | 2.57 |
| 40 | .0980 | 1-3/8 | 2-3/8 | 12 | 2.53 |
| 41 | .0960 | 1-3/8 | 2-3/8 | 12 | 2.53 |
| 42 | .0935 | 1-1/4 | 2-1/4 | 12 | 2.50 |
| 43 | .0890 | 1-1/4 | 2-1/4 | 12 | 2.50 |
| 44 | .0860 | 1-1/8 | 2-1/8 | 12 | 2.50 |
| 45 | .0820 | 1-1/8 | 2-1/8 | 12 | 2.50 |
| 46 | .0810 | 1-1/8 | 2-1/8 | 12 | 2.50 |
| 47 | .0785 | 1 | 2 | 12 | 2.50 |
| 48 | .0760 | 1 | 2 | 12 | 2.50 |
| 49 | .0730 | 1 | 2 | 12 | 2.50 |
| 50 | .0700 | 1 | 2 | 12 | 2.50 |
| 51 | .0670 | 1 | 2 | 12 | 2.50 |
| 52 | .0635 | 7/8 | 1-7/8 | 12 | 2.50 |
| 53 | .0595 | 7/8 | 1-7/8 | 12 | 2.63 |
| 54 | .0550 | 7/8 | 1-7/8 | 12 | 2.63 |

| Size | Dec. Equiv. | Flute Length | Overall Length | Pkg. Qty. | Price Each |
|------|-------------|--------------|----------------|-----------|------------|
| 55 | .0520 | 7/8 | 1-7/8 | 12 | 2.63 |
| 56 | .0465 | 3/4 | 1-3/4 | 12 | 2.89 |
| 57 | .0430 | 3/4 | 1-3/4 | 12 | 2.89 |
| 58 | .0420 | 11/16 | 1-5/8 | 12 | 2.89 |
| 59 | .0410 | 11/16 | 1-5/8 | 12 | 2.89 |
| 60 | .0400 | 11/16 | 1-5/8 | 12 | 2.89 |
| 61 | .0390 | 11/16 | 1-5/8 | 12 | 3.32 |
| 62 | .0380 | 5/8 | 1-1/2 | 12 | 3.32 |
| 63 | .0370 | 5/8 | 1-1/2 | 12 | 3.32 |
| 64 | .0360 | 5/8 | 1-1/2 | 12 | 3.32 |
| 65 | .0350 | 5/8 | 1-1/2 | 12 | 3.32 |
| 66 | .0330 | 1/2 | 1-3/8 | 12 | 3.53 |
| 67 | .0320 | 1/2 | 1-3/8 | 12 | 3.53 |
| 68 | .0310 | 1/2 | 1-3/8 | 12 | 3.67 |
| 69 | .0292 | 1/2 | 1-3/8 | 12 | 3.97 |
| 70 | .0280 | 3/8 | 1-1/4 | 12 | 3.97 |
| 71 | .0260 | 3/8 | 1-1/4 | 12 | 3.97 |
| 72 | .0250 | 5/16 | 1-1/8 | 12 | 3.97 |
| 73 | .0240 | 5/16 | 1-1/8 | 12 | 3.97 |
| 74 | .0225 | 1/4 | 1 | 12 | 3.97 |
| 75 | .0210 | 1/4 | 1 | 12 | 4.38 |
| 76 | .0200 | 3/16 | 7/8 | 12 | 4.38 |
| 77 | .0180 | 3/16 | 7/8 | 12 | 4.38 |
| 78 | .0160 | 3/16 | 7/8 | 12 | 4.38 |
| 79 | .0145 | 1/8 | 3/4 | 12 | 4.38 |
| 80 | .0135 | 1/8 | 3/4 | 12 | 4.42 |

*Cobalt sizes smaller than 1/16 furnished with 135° point — NOT Split.

COATED HEAVY DUTY JOBBER DRILLS



- LIST NO. 300SBT — TiN COATED
- LIST NO. 300SBTA — TiAIN COATED



HEAVY DUTY — 135° SPLIT POINT FRACTIONAL SIZES

| Size | Flute Length | Overall Length | Price Each | |
|-------|--------------|----------------|-----------------|------------------|
| | | | List No. 300SBT | List No. 300SBTA |
| 1/16 | 7/8 | 1-7/8 | 2.81 | 3.23 |
| 5/64 | 1 | 2 | 2.81 | 3.23 |
| 3/32 | 1-1/4 | 2-1/4 | 2.81 | 3.23 |
| 7/64 | 1-1/2 | 2-5/8 | 3.00 | 3.45 |
| 1/8 | 1-5/8 | 2-3/4 | 3.06 | 3.51 |
| 9/64 | 1-3/4 | 2-7/8 | 3.49 | 4.01 |
| 5/32 | 2 | 3-1/8 | 3.91 | 4.49 |
| 11/64 | 2-1/8 | 3-1/4 | 4.06 | 4.66 |
| 3/16 | 2-5/16 | 3-1/2 | 4.31 | 4.95 |
| 13/64 | 2-7/16 | 3-5/8 | 5.24 | 6.02 |

| Size | Flute Length | Overall Length | Price Each | |
|-------|--------------|----------------|-----------------|------------------|
| | | | List No. 300SBT | List No. 300SBTA |
| 7/32 | 2-1/2 | 3-3/4 | 5.60 | 6.44 |
| 15/64 | 2-5/8 | 3-7/8 | 5.98 | 6.87 |
| 1/4 | 2-3/4 | 4 | 6.09 | 7.00 |
| 17/64 | 2-7/8 | 4-1/8 | 8.85 | 10.15 |
| 9/32 | 2-15/16 | 4-1/4 | 8.77 | 10.08 |
| 19/64 | 3-1/16 | 4-3/8 | 9.77 | 11.23 |
| 5/16 | 3-3/16 | 4-1/2 | 10.05 | 11.55 |
| 21/64 | 3-5/16 | 4-5/8 | 10.88 | 12.51 |
| 11/32 | 3-7/16 | 4-3/4 | 11.45 | 13.16 |
| 23/64 | 3-1/2 | 4-7/8 | 12.48 | 14.35 |

| Size | Flute Length | Overall Length | Price Each | |
|-------|--------------|----------------|-----------------|------------------|
| | | | List No. 300SBT | List No. 300SBTA |
| 3/8 | 3-5/8 | 5 | 12.35 | 14.20 |
| 25/64 | 3-3/4 | 5-1/8 | 16.25 | 18.68 |
| 13/32 | 3-7/8 | 5-1/4 | 16.38 | 18.38 |
| 27/64 | 3-15/16 | 5-3/8 | 17.65 | 20.29 |
| 7/16 | 4-1/16 | 5-1/2 | 17.73 | 20.38 |
| 29/64 | 4-3/16 | 5-5/8 | 19.34 | 22.24 |
| 15/32 | 4-5/16 | 5-3/4 | 19.73 | 22.68 |
| 31/64 | 4-3/8 | 5-7/8 | 20.70 | 23.80 |
| 1/2 | 4-1/2 | 6 | 20.44 | 23.50 |

WIRE GAUGE SIZES

| Size | Flute Length | Overall Length | Price Each | |
|------|--------------|----------------|-----------------|------------------|
| | | | List No. 300SBT | List No. 300SBTA |
| 1 | 2-5/8 | 3-7/8 | 5.80 | 6.67 |
| 2 | 2-5/8 | 3-7/8 | 5.80 | 6.67 |
| 3 | 2-1/2 | 3-3/4 | 5.59 | 6.42 |
| 4 | 2-1/2 | 3-3/4 | 5.66 | 6.50 |
| 5 | 2-1/2 | 3-3/4 | 5.66 | 6.50 |
| 6 | 2-1/2 | 3-3/4 | 5.32 | 6.11 |
| 7 | 2-7/16 | 3-5/8 | 5.32 | 6.11 |
| 8 | 2-7/16 | 3-5/8 | 5.32 | 6.11 |
| 9 | 2-7/16 | 3-5/8 | 5.32 | 6.11 |
| 10 | 2-7/16 | 3-5/8 | 5.32 | 6.11 |
| 11 | 2-5/16 | 3-1/2 | 5.12 | 5.88 |
| 12 | 2-5/16 | 3-1/2 | 5.12 | 5.88 |
| 13 | 2-5/16 | 3-1/2 | 5.07 | 5.83 |
| 14 | 2-3/16 | 3-3/8 | 5.07 | 5.83 |

| Size | Flute Length | Overall Length | Price Each | |
|------|--------------|----------------|-----------------|------------------|
| | | | List No. 300SBT | List No. 300SBTA |
| 15 | 2-3/16 | 3-3/8 | 5.06 | 5.81 |
| 16 | 2-3/16 | 3-3/8 | 5.07 | 5.83 |
| 17 | 2-3/16 | 3-3/8 | 5.07 | 5.83 |
| 18 | 2-1/8 | 3-1/4 | 4.59 | 5.27 |
| 19 | 2-1/8 | 3-1/4 | 4.55 | 5.23 |
| 20 | 2-1/8 | 3-1/4 | 4.55 | 5.23 |
| 21 | 2-1/8 | 3-1/4 | 4.35 | 5.00 |
| 22 | 2 | 3-1/8 | 4.38 | 5.03 |
| 23 | 2 | 3-1/8 | 4.35 | 5.00 |
| 24 | 2 | 3-1/8 | 4.35 | 5.00 |
| 25 | 1-7/8 | 3 | 3.99 | 4.58 |
| 26 | 1-7/8 | 3 | 3.99 | 4.58 |
| 27 | 1-7/8 | 3 | 3.98 | 4.57 |

| Size | Flute Length | Overall Length | Price Each | |
|------|--------------|----------------|-----------------|------------------|
| | | | List No. 300SBT | List No. 300SBTA |
| 28 | 1-3/4 | 2-7/8 | 3.78 | 4.34 |
| 29 | 1-3/4 | 2-7/8 | 3.78 | 4.34 |
| 30 | 1-5/8 | 2-3/4 | 3.78 | 4.34 |
| 31 | 1-5/8 | 2-3/4 | 3.78 | 4.34 |
| 32 | 1-5/8 | 2-3/4 | 3.78 | 4.34 |
| 33 | 1-1/2 | 2-5/8 | 3.78 | 4.34 |
| 34 | 1-1/2 | 2-5/8 | 3.78 | 4.34 |
| 35 | 1-1/2 | 2-5/8 | 3.78 | 4.34 |
| 36 | 1-7/16 | 2-1/2 | 3.78 | 4.34 |
| 37 | 1-7/16 | 2-1/2 | 3.78 | 4.34 |
| 38 | 1-7/16 | 2-1/2 | 3.78 | 4.34 |
| 39 | 1-3/8 | 2-3/8 | 3.78 | 4.34 |
| 40 | 1-3/8 | 2-3/8 | 3.78 | 4.34 |

COATED *Cobalt* JOBBER DRILLS

TiN Coating reduces wear and improves chip formation to extend tool life. In addition, the high hardness and low coefficient of friction of TiN reduce erosion, abrasion, metal on metal wear and corrosion.

- LIST NO. 300CT — TiN COATED
- LIST NO. 300CTA — TiAIN COATED



HEAVY DUTY — 135° SPLIT POINT FRACTIONAL SIZES

TiAIN insulates the tool and ejects heat into the chips. As a result, production levels increase with higher speeds, reduced down time and longer tool life.

| Size | Flute Length | Overall Length | Price Each | |
|-------|--------------|----------------|----------------|-----------------|
| | | | List No. 300CT | List No. 300CTA |
| 1/16 | 7/8 | 1-7/8 | 3.43 | 3.94 |
| 5/64 | 1 | 2 | 3.43 | 3.94 |
| 3/32 | 1-1/4 | 2-1/4 | 3.43 | 3.94 |
| 7/64 | 1-1/2 | 2-5/8 | 3.57 | 4.10 |
| 1/8 | 1-5/8 | 2-3/4 | 4.08 | 4.69 |
| 9/64 | 1-3/4 | 2-7/8 | 4.15 | 4.77 |
| 5/32 | 2 | 3-1/8 | 4.48 | 5.15 |
| 11/64 | 2-1/8 | 3-1/4 | 4.68 | 5.38 |
| 3/16 | 2-5/16 | 3-1/2 | 5.84 | 6.71 |
| 13/64 | 2-7/16 | 3-5/8 | 7.32 | 8.41 |

| Size | Flute Length | Overall Length | Price Each | |
|-------|--------------|----------------|----------------|-----------------|
| | | | List No. 300CT | List No. 300CTA |
| 7/32 | 2-1/2 | 3-3/4 | 7.72 | 8.87 |
| 15/64 | 2-5/8 | 3-7/8 | 8.08 | 9.29 |
| 1/4 | 2-3/4 | 4 | 8.39 | 9.64 |
| 17/64 | 2-7/8 | 4-1/8 | 11.30 | 12.99 |
| 9/32 | 2-15/16 | 4-1/4 | 11.64 | 13.38 |
| 19/64 | 3-1/16 | 4-3/8 | 13.16 | 15.13 |
| 5/16 | 3-3/16 | 4-1/2 | 13.72 | 15.77 |
| 21/64 | 3-5/16 | 4-5/8 | 14.66 | 16.85 |
| 11/32 | 3-7/16 | 4-3/4 | 15.62 | 17.96 |
| 23/64 | 3-1/2 | 4-7/8 | 17.88 | 20.56 |

| Size | Flute Length | Overall Length | Price Each | |
|-------|--------------|----------------|----------------|-----------------|
| | | | List No. 300CT | List No. 300CTA |
| 3/8 | 3-5/8 | 5 | 17.16 | 19.73 |
| 25/64 | 3-3/4 | 5-1/8 | 21.64 | 24.88 |
| 13/32 | 3-7/8 | 5-1/4 | 22.26 | 25.59 |
| 27/64 | 3-15/16 | 5-3/8 | 23.83 | 27.40 |
| 7/16 | 4-1/16 | 5-1/2 | 24.20 | 27.83 |
| 29/64 | 4-3/16 | 5-5/8 | 27.60 | 31.74 |
| 15/32 | 4-5/16 | 5-3/4 | 27.98 | 32.17 |
| 31/64 | 4-3/8 | 5-7/8 | 28.59 | 32.87 |
| 1/2 | 4-1/2 | 6 | 28.38 | 32.63 |

WIRE GAUGE SIZES

| Size | Flute Length | Overall Length | Price Each | |
|------|--------------|----------------|----------------|-----------------|
| | | | List No. 300CT | List No. 300CTA |
| 1 | 2-5/8 | 3-7/8 | 8.49 | 9.76 |
| 2 | 2-5/8 | 3-7/8 | 8.49 | 9.76 |
| 3 | 2-1/2 | 3-3/4 | 8.24 | 8.47 |
| 4 | 2-1/2 | 3-3/4 | 8.24 | 8.47 |
| 5 | 2-1/2 | 3-3/4 | 8.24 | 8.47 |
| 6 | 2-1/2 | 3-3/4 | 8.24 | 8.47 |
| 7 | 2-7/16 | 3-5/8 | 6.28 | 7.22 |
| 8 | 2-7/16 | 3-5/8 | 6.28 | 7.22 |
| 9 | 2-7/16 | 3-5/8 | 6.28 | 7.22 |
| 10 | 2-7/16 | 3-5/8 | 6.28 | 7.22 |
| 11 | 2-5/16 | 3-1/2 | 6.28 | 7.22 |
| 12 | 2-5/16 | 3-1/2 | 6.28 | 7.22 |
| 13 | 2-5/16 | 3-1/2 | 6.00 | 6.90 |
| 14 | 2-3/16 | 3-3/8 | 6.00 | 6.90 |

| Size | Flute Length | Overall Length | Price Each | |
|------|--------------|----------------|----------------|-----------------|
| | | | List No. 300CT | List No. 300CTA |
| 15 | 2-3/16 | 3-3/8 | 6.00 | 6.90 |
| 16 | 2-3/16 | 3-3/8 | 6.00 | 6.90 |
| 17 | 2-3/16 | 3-3/8 | 6.00 | 6.90 |
| 18 | 2-1/8 | 3-1/4 | 5.96 | 6.85 |
| 19 | 2-1/8 | 3-1/4 | 5.96 | 6.85 |
| 20 | 2-1/8 | 3-1/4 | 5.96 | 6.85 |
| 21 | 2-1/8 | 3-1/4 | 5.94 | 6.83 |
| 22 | 2 | 3-1/8 | 5.94 | 6.83 |
| 23 | 2 | 3-1/8 | 5.94 | 6.83 |
| 24 | 2 | 3-1/8 | 5.94 | 6.83 |
| 25 | 1-7/8 | 3 | 5.62 | 6.46 |
| 26 | 1-7/8 | 3 | 5.59 | 6.42 |
| 27 | 1-7/8 | 3 | 5.59 | 6.42 |

| Size | Flute Length | Overall Length | Price Each | |
|------|--------------|----------------|----------------|-----------------|
| | | | List No. 300CT | List No. 300CTA |
| 28 | 1-3/4 | 2-7/8 | 4.99 | 5.69 |
| 29 | 1-3/4 | 2-7/8 | 4.99 | 5.62 |
| 30 | 1-5/8 | 2-3/4 | 4.95 | 5.39 |
| 31 | 1-5/8 | 2-3/4 | 4.89 | 5.34 |
| 32 | 1-5/8 | 2-3/4 | 4.69 | 5.22 |
| 33 | 1-1/2 | 2-5/8 | 4.65 | 5.22 |
| 34 | 1-1/2 | 2-5/8 | 4.54 | 5.22 |
| 35 | 1-1/2 | 2-5/8 | 4.54 | 5.17 |
| 36 | 1-7/16 | 2-1/2 | 4.50 | 5.17 |
| 37 | 1-7/16 | 2-1/2 | 4.50 | 4.99 |
| 38 | 1-7/16 | 2-1/2 | 4.34 | 4.99 |
| 39 | 1-3/8 | 2-3/8 | 4.34 | 4.99 |
| 40 | 1-3/8 | 2-3/8 | 4.34 | 4.99 |



JOBBER LENGTH DRILLS

FAST SPIRAL

▶ LIST NO. 300F — BRIGHT FINISH, 118° POINT

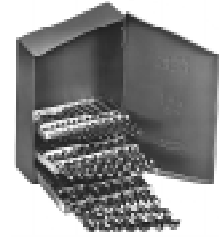
Please order in package quantity.



SET NO. 307FF

29 Piece Fast Spiral Fractional Set
1/16 - 1/2 x 64ths in Metal Index

SET PRICE — \$211.50



These drills are designed primarily for drilling in nonferrous materials such as aluminum, zinc die cast, and some plastics. They are successfully used in mild steel deep holes where chip packing occurs with standard helix drills.

FRACTIONAL SIZES

| Size | Dec. Equiv. | Flute Length | Overall Length | Pkg. Qty. | Price Each |
|-------|-------------|--------------|----------------|-----------|------------|
| 1/64 | .0156 | 3/16 | 3/4 | 12 | 3.50 |
| 1/32 | .0312 | 1/2 | 1-3/8 | 12 | 2.49 |
| 3/64 | .0469 | 3/4 | 1-3/4 | 12 | 2.05 |
| 1/16 | .0625 | 7/8 | 1-7/8 | 12 | 2.02 |
| 5/64 | .0781 | 1 | 2 | 12 | 2.05 |
| 3/32 | .0938 | 1-1/4 | 2-1/4 | 12 | 2.05 |
| 7/64 | .1094 | 1-1/2 | 2-5/8 | 12 | 2.02 |
| 1/8 | .1250 | 1-5/8 | 2-3/4 | 12 | 2.02 |
| 9/64 | .1406 | 1-3/4 | 2-7/8 | 12 | 2.02 |
| 5/32 | .1562 | 2 | 3-1/8 | 12 | 2.19 |
| 11/64 | .1719 | 2-1/8 | 3-1/4 | 12 | 2.66 |

| Size | Dec. Equiv. | Flute Length | Overall Length | Pkg. Qty. | Price Each |
|-------|-------------|--------------|----------------|-----------|------------|
| 3/16 | .1875 | 2-5/16 | 3-1/2 | 12 | 2.94 |
| 13/64 | .2031 | 2-7/16 | 3-5/8 | 12 | 3.37 |
| 7/32 | .2188 | 2-1/2 | 3-3/4 | 12 | 3.68 |
| 15/64 | .2344 | 2-5/8 | 3-7/8 | 12 | 4.17 |
| 1/4 | .2500 | 2-3/4 | 4 | 12 | 3.98 |
| 17/64 | .2656 | 2-7/8 | 4-1/8 | 12 | 5.37 |
| 9/32 | .2812 | 2-15/16 | 4-1/4 | 6 | 5.36 |
| 19/64 | .2969 | 3-1/16 | 4-3/8 | 6 | 6.19 |
| 5/16 | .3125 | 3-3/16 | 4-1/2 | 6 | 6.38 |
| 21/64 | .3281 | 3-5/16 | 4-5/8 | 6 | 7.39 |
| 11/32 | .3438 | 3-7/16 | 4-3/4 | 6 | 7.85 |

| Size | Dec. Equiv. | Flute Length | Overall Length | Pkg. Qty. | Price Each |
|-------|-------------|--------------|----------------|-----------|------------|
| 23/64 | .3594 | 3-1/2 | 4-7/8 | 6 | 9.76 |
| 3/8 | .3750 | 3-5/8 | 5 | 6 | 9.46 |
| 25/64 | .3906 | 3-3/4 | 5-1/8 | 6 | 11.33 |
| 13/32 | .4062 | 3-7/8 | 5-1/4 | 6 | 11.06 |
| 27/64 | .4219 | 3-15/16 | 5-3/8 | 6 | 13.20 |
| 7/16 | .4375 | 4-1/16 | 5-1/2 | 6 | 12.98 |
| 29/64 | .4531 | 4-3/16 | 5-5/8 | 6 | 14.21 |
| 15/32 | .4688 | 4-5/16 | 5-3/4 | 6 | 14.61 |
| 31/64 | .4844 | 4-3/8 | 5-7/8 | 6 | 16.02 |
| 1/2 | .5000 | 4-1/2 | 6 | 6 | 15.48 |

LETTER SIZES

| Size | Dec. Equiv. | Flute Length | Overall Length | Pkg. Qty. | Price Each |
|------|-------------|--------------|----------------|-----------|------------|
| A | .2340 | 2-5/8 | 3-7/8 | 12 | 4.72 |
| B | .2380 | 2-3/4 | 4 | 12 | 4.57 |
| C | .2420 | 2-3/4 | 4 | 12 | 4.19 |
| D | .2460 | 2-3/4 | 4 | 12 | 4.19 |
| E | .2500 | 2-3/4 | 4 | 12 | 3.98 |
| F | .2570 | 2-7/8 | 4-1/8 | 12 | 4.90 |
| G | .2610 | 2-7/8 | 4-1/8 | 12 | 5.20 |
| H | .2660 | 2-7/8 | 4-1/8 | 12 | 5.85 |
| I | .2720 | 2-7/8 | 4-1/8 | 6 | 5.08 |

| Size | Dec. Equiv. | Flute Length | Overall Length | Pkg. Qty. | Price Each |
|------|-------------|--------------|----------------|-----------|------------|
| J | .2770 | 2-7/8 | 4-1/8 | 6 | 5.85 |
| K | .2810 | 2-15/16 | 4-1/4 | 6 | 7.35 |
| L | .2900 | 2-15/16 | 4-1/4 | 6 | 6.35 |
| M | .2950 | 3-1/16 | 4-3/8 | 6 | 6.85 |
| N | .3020 | 3-1/16 | 4-3/8 | 6 | 6.25 |
| O | .3160 | 3-3/16 | 4-1/2 | 6 | 6.75 |
| P | .3230 | 3-5/16 | 4-5/8 | 6 | 7.10 |
| Q | .3320 | 3-7/16 | 4-3/4 | 6 | 7.10 |
| R | .3390 | 3-7/16 | 4-3/4 | 6 | 7.35 |

| Size | Dec. Equiv. | Flute Length | Overall Length | Pkg. Qty. | Price Each |
|------|-------------|--------------|----------------|-----------|------------|
| S | .3480 | 3-1/2 | 4-7/8 | 6 | 8.00 |
| T | .3580 | 3-1/2 | 4-7/8 | 6 | 9.35 |
| U | .3680 | 3-5/8 | 5 | 6 | 9.35 |
| V | .3770 | 3-5/8 | 5 | 6 | 9.85 |
| W | .3860 | 3-3/4 | 5-1/8 | 6 | 10.10 |
| X | .3970 | 3-3/4 | 5-1/8 | 6 | 11.50 |
| Y | .4040 | 3-7/8 | 5-1/4 | 6 | 13.40 |
| Z | .4130 | 3-7/8 | 5-1/4 | 6 | 13.95 |

WIRE GAUGE SIZES

| Size | Dec. Equiv. | Flute Length | Overall Length | Pkg. Qty. | Price Each |
|------|-------------|--------------|----------------|-----------|------------|
| 1 | .2280 | 2-5/8 | 3-7/8 | 12 | 4.11 |
| 2 | .2210 | 2-5/8 | 3-7/8 | 12 | 4.23 |
| 3 | .2130 | 2-1/2 | 3-3/4 | 12 | 3.98 |
| 4 | .2090 | 2-1/2 | 3-3/4 | 12 | 3.98 |
| 5 | .2055 | 2-1/2 | 3-3/4 | 12 | 3.98 |
| 6 | .2040 | 2-1/2 | 3-3/4 | 12 | 3.98 |
| 7 | .2010 | 2-7/16 | 3-5/8 | 12 | 3.24 |
| 8 | .1990 | 2-7/16 | 3-5/8 | 12 | 3.33 |
| 9 | .1960 | 2-7/16 | 3-5/8 | 12 | 3.26 |
| 10 | .1935 | 2-7/16 | 3-5/8 | 12 | 3.26 |
| 11 | .1910 | 2-5/16 | 3-1/2 | 12 | 3.08 |
| 12 | .1890 | 2-5/16 | 3-1/2 | 12 | 3.27 |
| 13 | .1850 | 2-5/16 | 3-1/2 | 12 | 3.07 |
| 14 | .1820 | 2-3/16 | 3-3/8 | 12 | 3.07 |
| 15 | .1800 | 2-3/16 | 3-3/8 | 12 | 2.98 |
| 16 | .1770 | 2-3/16 | 3-3/8 | 12 | 2.98 |
| 17 | .1730 | 2-3/16 | 3-3/8 | 12 | 3.06 |
| 18 | .1695 | 2-1/8 | 3-1/4 | 12 | 2.63 |
| 19 | .1660 | 2-1/8 | 3-1/4 | 12 | 2.57 |
| 20 | .1610 | 2-1/8 | 3-1/4 | 12 | 2.57 |
| 21 | .1590 | 2-1/8 | 3-1/4 | 12 | 2.37 |
| 22 | .1570 | 2 | 3-1/8 | 12 | 2.43 |
| 23 | .1540 | 2 | 3-1/8 | 12 | 2.27 |
| 24 | .1520 | 2 | 3-1/8 | 12 | 2.15 |
| 25 | .1495 | 1-7/8 | 3 | 12 | 2.15 |
| 26 | .1470 | 1-7/8 | 3 | 12 | 2.15 |
| 27 | .1440 | 1-7/8 | 3 | 12 | 2.15 |

| Size | Dec. Equiv. | Flute Length | Overall Length | Pkg. Qty. | Price Each |
|------|-------------|--------------|----------------|-----------|------------|
| 28 | .1405 | 1-3/4 | 2-7/8 | 12 | 2.10 |
| 29 | .1360 | 1-3/4 | 2-7/8 | 12 | 1.99 |
| 30 | .1285 | 1-5/8 | 2-3/4 | 12 | 1.99 |
| 31 | .1200 | 1-5/8 | 2-3/4 | 12 | 2.05 |
| 32 | .1160 | 1-5/8 | 2-3/4 | 12 | 2.05 |
| 33 | .1130 | 1-1/2 | 2-5/8 | 12 | 2.11 |
| 34 | .1110 | 1-1/2 | 2-5/8 | 12 | 2.11 |
| 35 | .1100 | 1-1/2 | 2-5/8 | 12 | 2.05 |
| 36 | .1065 | 1-7/16 | 2-1/2 | 12 | 2.11 |
| 37 | .1040 | 1-7/16 | 2-1/2 | 12 | 2.05 |
| 38 | .1015 | 1-7/16 | 2-1/2 | 12 | 2.05 |
| 39 | .0995 | 1-3/8 | 2-3/8 | 12 | 2.05 |
| 40 | .0980 | 1-3/8 | 2-3/8 | 12 | 1.99 |
| 41 | .0960 | 1-3/8 | 2-3/8 | 12 | 2.13 |
| 42 | .0935 | 1-1/4 | 2-1/4 | 12 | 2.13 |
| 43 | .0890 | 1-1/4 | 2-1/4 | 12 | 2.03 |
| 44 | .0860 | 1-1/4 | 2-1/8 | 12 | 2.09 |
| 45 | .0820 | 1-1/8 | 2-1/8 | 12 | 2.09 |
| 46 | .0810 | 1-1/8 | 2-1/8 | 12 | 2.09 |
| 47 | .0785 | 1 | 2 | 12 | 2.13 |
| 48 | .0760 | 1 | 2 | 12 | 2.08 |
| 49 | .0730 | 1 | 2 | 12 | 2.13 |
| 50 | .0700 | 1 | 2 | 12 | 2.08 |
| 51 | .0670 | 1 | 2 | 12 | 2.08 |
| 52 | .0635 | 7/8 | 1-7/8 | 12 | 2.08 |
| 53 | .0595 | 7/8 | 1-7/8 | 12 | 2.08 |
| 54 | .0550 | 7/8 | 1-7/8 | 12 | 2.08 |

| Size | Dec. Equiv. | Flute Length | Overall Length | Pkg. Qty. | Price Each |
|------|-------------|--------------|----------------|-----------|------------|
| 55 | .0520 | 7/8 | 1-7/8 | 12 | 2.02 |
| 56 | .0465 | 3/4 | 1-3/4 | 12 | 2.08 |
| 57 | .0430 | 3/4 | 1-3/4 | 12 | 2.13 |
| 58 | .0420 | 11/16 | 1-5/8 | 12 | 2.13 |
| 59 | .0410 | 11/16 | 1-5/8 | 12 | 2.13 |
| 60 | .0400 | 11/16 | 1-5/8 | 12 | 2.13 |
| 61 | .0390 | 11/16 | 1-5/8 | 12 | 2.48 |
| 62 | .0380 | 5/8 | 1-1/2 | 12 | 2.48 |
| 63 | .0370 | 5/8 | 1-1/2 | 12 | 2.48 |
| 64 | .0360 | 5/8 | 1-1/2 | 12 | 2.48 |
| 65 | .0350 | 5/8 | 1-1/2 | 12 | 2.33 |
| 66 | .0330 | 1/2 | 1-3/8 | 12 | 2.47 |
| 67 | .0320 | 1/2 | 1-3/8 | 12 | 2.33 |
| 68 | .0310 | 1/2 | 1-3/8 | 12 | 2.33 |
| 69 | .0292 | 1/2 | 1-3/8 | 12 | 2.62 |
| 70 | .0280 | 3/8 | 1-1/4 | 12 | 2.62 |
| 71 | .0260 | 3/8 | 1-1/4 | 12 | 3.41 |
| 72 | .0250 | 5/16 | 1-1/8 | 12 | 3.22 |
| 73 | .0240 | 5/16 | 1-1/8 | 12 | 3.22 |
| 74 | .0225 | 1/4 | 1 | 12 | 3.22 |
| 75 | .0210 | 1/4 | 1 | 12 | 3.22 |
| 76 | .0200 | 3/16 | 7/8 | 12 | 3.22 |
| 77 | .0180 | 3/16 | 7/8 | 12 | 3.22 |
| 78 | .0160 | 3/16 | 7/8 | 12 | 3.22 |
| 79 | .0145 | 1/8 | 3/4 | 12 | 3.76 |
| 80 | .0135 | 1/8 | 3/4 | 12 | 3.76 |

PARABOLIC FLUTE DRILLS

JOBBER LENGTH

● LIST NO. 300PF — 135° SPLIT POINT

Please order in package quantity.



SET NO. 307PF

29 Piece High Speed
Fractional Jobber Set
1/16 - 1/2 x 64ths in Metal Index
SET PRICE — \$277.00

Parabolic drills are for deep hole drilling at higher feed rates in aluminum alloys and other low to medium tensile strength materials.

FRACTIONAL SIZES

| Size | Dec. Equiv. | Flute Length | Overall Length | Pkg. Qty. | Price Each |
|-------|-------------|--------------|----------------|-----------|------------|
| 1/16 | .0625 | 7/8 | 1-7/8 | 12 | 2.69 |
| 5/64 | .0781 | 1 | 2 | 12 | 2.74 |
| 3/32 | .0938 | 1-1/4 | 2-1/4 | 12 | 2.69 |
| 7/64 | .1094 | 1-1/2 | 2-5/8 | 12 | 2.99 |
| 1/8 | .1250 | 1-5/8 | 2-3/4 | 12 | 3.03 |
| 9/64 | .1406 | 1-3/4 | 2-7/8 | 12 | 3.12 |
| 5/32 | .1562 | 2 | 3-1/8 | 12 | 3.19 |
| 11/64 | .1719 | 2-1/8 | 3-1/4 | 12 | 3.61 |
| 3/16 | .1875 | 2-5/16 | 3-1/2 | 12 | 3.86 |
| 13/64 | .2031 | 2-7/16 | 3-5/8 | 12 | 4.38 |
| 7/32 | .2188 | 2-1/2 | 3-3/4 | 12 | 4.87 |
| 15/64 | .2344 | 2-5/8 | 3-7/8 | 12 | 5.45 |
| 1/4 | .2500 | 2-3/4 | 4 | 12 | 5.62 |
| 17/64 | .2656 | 2-7/8 | 4-1/8 | 12 | 6.68 |

| Size | Dec. Equiv. | Flute Length | Overall Length | Pkg. Qty. | Price Each |
|-------|-------------|--------------|----------------|-----------|------------|
| 9/32 | .2812 | 2-15/16 | 4-1/4 | 6 | 6.68 |
| 19/64 | .2969 | 3-1/16 | 4-3/8 | 6 | 8.08 |
| 5/16 | .3125 | 3-3/16 | 4-1/2 | 6 | 8.61 |
| 21/64 | .3281 | 3-5/16 | 4-5/8 | 6 | 9.83 |
| 11/32 | .3438 | 3-7/16 | 4-3/4 | 6 | 10.76 |
| 23/64 | .3594 | 3-1/2 | 4-7/8 | 6 | 12.51 |
| 3/8 | .3750 | 3-5/8 | 5 | 6 | 12.30 |
| 25/64 | .3906 | 3-3/4 | 5-1/8 | 6 | 14.37 |
| 13/32 | .4062 | 3-7/8 | 5-1/4 | 6 | 14.34 |
| 27/64 | .4219 | 3-15/16 | 5-3/8 | 6 | 16.45 |
| 7/16 | .4375 | 4-1/16 | 5-1/2 | 6 | 16.50 |
| 29/64 | .4531 | 4-3/16 | 5-5/8 | 6 | 19.39 |
| 15/32 | .4688 | 4-5/16 | 5-3/4 | 6 | 19.89 |
| 31/64 | .4844 | 4-3/8 | 5-7/8 | 6 | 21.58 |

| Size | Dec. Equiv. | Flute Length | Overall Length | Pkg. Qty. | Price Each |
|-------|-------------|--------------|----------------|-----------|------------|
| 1/2 | .5000 | 4-1/2 | 6 | 6 | 20.91 |
| 33/64 | .5156 | 4-13/16 | 6-5/8 | 1 | 39.04 |
| 17/32 | .5312 | 4-13/16 | 6-5/8 | 1 | 39.82 |
| 35/64 | .5469 | 4-13/16 | 6-5/8 | 1 | 40.53 |
| 9/16 | .5625 | 4-13/16 | 6-5/8 | 1 | 41.34 |
| 37/64 | .5781 | 4-13/16 | 6-5/8 | 1 | 42.21 |
| 19/32 | .5938 | 5-3/16 | 7-1/8 | 1 | 43.05 |
| 39/64 | .6094 | 5-3/16 | 7-1/8 | 1 | 44.34 |
| 5/8 | .6250 | 5-3/16 | 7-1/8 | 1 | 45.23 |
| 41/64 | .6406 | 5-3/16 | 7-1/8 | 1 | 46.13 |
| 21/32 | .6562 | 5-3/16 | 7-1/8 | 1 | 47.05 |
| 43/64 | .6719 | 5-5/8 | 7-5/8 | 1 | 49.16 |
| 11/16 | .6875 | 5-5/8 | 7-5/8 | 1 | 50.14 |

LETTER SIZES

| Size | Dec. Equiv. | Flute Length | Overall Length | Pkg. Qty. | Price Each |
|------|-------------|--------------|----------------|-----------|------------|
| A | .2340 | 2-5/8 | 3-7/8 | 12 | 6.29 |
| B | .2380 | 2-3/4 | 4 | 12 | 7.25 |
| C | .2420 | 2-3/4 | 4 | 12 | 7.25 |
| D | .2460 | 2-3/4 | 4 | 12 | 8.16 |
| E | .2500 | 2-3/4 | 4 | 12 | 5.62 |
| F | .2570 | 2-7/8 | 4-1/8 | 12 | 7.19 |
| G | .2610 | 2-7/8 | 4-1/8 | 12 | 7.25 |
| H | .2660 | 2-7/8 | 4-1/8 | 12 | 8.17 |
| I | .2720 | 2-7/8 | 4-1/8 | 6 | 7.64 |

| Size | Dec. Equiv. | Flute Length | Overall Length | Pkg. Qty. | Price Each |
|------|-------------|--------------|----------------|-----------|------------|
| J | .2770 | 2-7/8 | 4-1/8 | 6 | 8.16 |
| K | .2810 | 2-15/16 | 4-1/4 | 6 | 8.16 |
| L | .2900 | 2-15/16 | 4-1/4 | 6 | 9.27 |
| M | .2950 | 3-1/16 | 4-3/8 | 6 | 9.84 |
| N | .3020 | 3-1/16 | 4-3/8 | 6 | 9.84 |
| O | .3160 | 3-3/16 | 4-1/2 | 6 | 10.86 |
| P | .3230 | 3-5/16 | 4-5/8 | 6 | 11.55 |
| Q | .3320 | 3-7/16 | 4-3/4 | 6 | 11.96 |
| R | .3390 | 3-7/16 | 4-3/4 | 6 | 11.96 |

| Size | Dec. Equiv. | Flute Length | Overall Length | Pkg. Qty. | Price Each |
|------|-------------|--------------|----------------|-----------|------------|
| S | .3480 | 3-1/2 | 4-7/8 | 6 | 14.65 |
| T | .3580 | 3-1/2 | 4-7/8 | 6 | 14.65 |
| U | .3680 | 3-5/8 | 5 | 6 | 14.65 |
| V | .3770 | 3-5/8 | 5 | 6 | 16.18 |
| W | .3860 | 3-3/4 | 5-1/8 | 6 | 16.18 |
| X | .3970 | 3-3/4 | 5-1/8 | 6 | 16.18 |
| Y | .4040 | 3-7/8 | 5-1/4 | 6 | 17.12 |
| Z | .4130 | 3-7/8 | 5-1/4 | 6 | 18.64 |

WIRE GAUGE SIZES

| Size | Dec. Equiv. | Flute Length | Overall Length | Pkg. Qty. | Price Each |
|------|-------------|--------------|----------------|-----------|------------|
| 1 | .2280 | 2-5/8 | 3-7/8 | 12 | 5.89 |
| 2 | .2210 | 2-5/8 | 3-7/8 | 12 | 5.89 |
| 3 | .2130 | 2-1/2 | 3-3/4 | 12 | 5.33 |
| 4 | .2090 | 2-1/2 | 3-3/4 | 12 | 5.33 |
| 5 | .2055 | 2-1/2 | 3-3/4 | 12 | 5.33 |
| 6 | .2040 | 2-1/2 | 3-3/4 | 12 | 5.33 |
| 7 | .2010 | 2-7/16 | 3-5/8 | 12 | 4.76 |
| 8 | .1990 | 2-7/16 | 3-5/8 | 12 | 4.76 |
| 9 | .1960 | 2-7/16 | 3-5/8 | 12 | 4.76 |
| 10 | .1935 | 2-7/16 | 3-5/8 | 12 | 4.76 |
| 11 | .1910 | 2-5/16 | 3-1/2 | 12 | 4.38 |
| 12 | .1890 | 2-5/16 | 3-1/2 | 12 | 4.38 |
| 13 | .1850 | 2-5/16 | 3-1/2 | 12 | 4.30 |
| 14 | .1820 | 2-3/16 | 3-3/8 | 12 | 4.30 |
| 15 | .1800 | 2-3/16 | 3-3/8 | 12 | 4.30 |
| 16 | .1770 | 2-3/16 | 3-3/8 | 12 | 4.30 |
| 17 | .1730 | 2-3/16 | 3-3/8 | 12 | 4.30 |
| 18 | .1695 | 2-1/8 | 3-1/4 | 12 | 3.54 |

| Size | Dec. Equiv. | Flute Length | Overall Length | Pkg. Qty. | Price Each |
|------|-------------|--------------|----------------|-----------|------------|
| 19 | .1660 | 2-1/8 | 3-1/4 | 12 | 3.54 |
| 20 | .1610 | 2-1/8 | 3-1/4 | 12 | 3.54 |
| 21 | .1590 | 2-1/8 | 3-1/4 | 12 | 3.31 |
| 22 | .1570 | 2 | 3-1/8 | 12 | 3.31 |
| 23 | .1540 | 2 | 3-1/8 | 12 | 3.21 |
| 24 | .1520 | 2 | 3-1/8 | 12 | 3.21 |
| 25 | .1495 | 1-7/8 | 3 | 12 | 3.19 |
| 26 | .1470 | 1-7/8 | 3 | 12 | 3.19 |
| 27 | .1440 | 1-7/8 | 3 | 12 | 3.19 |
| 28 | .1405 | 1-3/4 | 2-7/8 | 12 | 2.91 |
| 29 | .1360 | 1-3/4 | 2-7/8 | 12 | 2.91 |
| 30 | .1285 | 1-5/8 | 2-3/4 | 12 | 2.91 |
| 31 | .1200 | 1-5/8 | 2-3/4 | 12 | 2.91 |
| 32 | .1160 | 1-5/8 | 2-3/4 | 12 | 2.91 |
| 33 | .1130 | 1-1/2 | 2-5/8 | 12 | 2.91 |
| 34 | .1110 | 1-1/2 | 2-5/8 | 12 | 2.91 |
| 35 | .1100 | 1-1/2 | 2-5/8 | 12 | 2.91 |
| 36 | .1065 | 1-7/16 | 2-1/2 | 12 | 2.91 |

| Size | Dec. Equiv. | Flute Length | Overall Length | Pkg. Qty. | Price Each |
|------|-------------|--------------|----------------|-----------|------------|
| 37 | .1040 | 1-7/16 | 2-1/2 | 12 | 2.91 |
| 38 | .1015 | 1-7/16 | 2-1/2 | 12 | 2.91 |
| 39 | .0995 | 1-3/8 | 2-3/8 | 12 | 2.91 |
| 40 | .0980 | 1-3/8 | 2-3/8 | 12 | 2.91 |
| 41 | .0960 | 1-3/8 | 2-3/8 | 12 | 2.91 |
| 42 | .0935 | 1-1/4 | 2-1/4 | 12 | 2.91 |
| 43 | .0890 | 1-1/4 | 2-1/4 | 12 | 2.91 |
| 44 | .0860 | 1-1/8 | 2-1/8 | 12 | 2.91 |
| 45 | .0820 | 1-1/8 | 2-1/8 | 12 | 2.91 |
| 46 | .0810 | 1-1/8 | 2-1/8 | 12 | 2.91 |
| 47 | .0785 | 1 | 2 | 12 | 2.91 |
| 48 | .0760 | 1 | 2 | 12 | 2.91 |
| 49 | .0730 | 1 | 2 | 12 | 2.91 |
| 50 | .0700 | 1 | 2 | 12 | 2.91 |
| 51 | .0670 | 1 | 2 | 12 | 2.91 |
| 52 | .0635 | 7/8 | 1-7/8 | 12 | 2.91 |

Screw Machine Lengths also available. Please inquire.

METRIC SIZES

| Size | Dec. Equiv. | Flute Length | Overall Length | Pkg. Qty. | Price Each |
|------|-------------|--------------|----------------|-----------|------------|
| 1.50 | .0591 | 7/8 | 1-7/8 | 12 | 2.73 |
| 2.00 | .0787 | 1 | 2-1/8 | 12 | 2.73 |
| 2.50 | .0984 | 1-3/8 | 2-3/8 | 12 | 2.99 |
| 3.00 | .1181 | 1-5/8 | 2-3/4 | 12 | 3.05 |
| 3.50 | .1378 | 1-3/4 | 2-7/8 | 12 | 3.16 |
| 4.00 | .1575 | 2-1/8 | 3-1/4 | 12 | 3.49 |
| 4.50 | .1772 | 2-3/16 | 3-3/8 | 12 | 3.94 |
| 5.00 | .1968 | 2-7/16 | 3-5/8 | 12 | 4.29 |
| 5.20 | .2047 | 2-1/2 | 3-3/4 | 12 | 4.92 |
| 5.50 | .2165 | 2-1/2 | 3-3/4 | 12 | 4.92 |
| 5.60 | .2205 | 2-5/8 | 3-7/8 | 12 | 5.27 |
| 6.00 | .2362 | 2-3/4 | 4 | 12 | 5.69 |
| 6.50 | .2559 | 2-7/8 | 4-1/8 | 12 | 6.53 |

| Size | Dec. Equiv. | Flute Length | Overall Length | Pkg. Qty. | Price Each |
|-------|-------------|--------------|----------------|-----------|------------|
| 6.80 | .2677 | 2-7/8 | 4-1/8 | 12 | 6.78 |
| 7.00 | .2756 | 2-7/8 | 4-1/8 | 12 | 6.78 |
| 7.50 | .2953 | 3-1/16 | 4-3/8 | 6 | 7.90 |
| 8.00 | .3150 | 3-3/16 | 4-1/2 | 6 | 9.62 |
| 8.20 | .3228 | 3-5/16 | 4-5/8 | 6 | 9.80 |
| 8.50 | .3346 | 3-7/16 | 4-3/4 | 6 | 10.76 |
| 8.60 | .3386 | 3-7/16 | 4-3/4 | 6 | 10.94 |
| 9.00 | .3543 | 3-1/2 | 4-7/8 | 6 | 12.04 |
| 9.50 | .3740 | 3-5/8 | 5 | 6 | 12.46 |
| 10.00 | .3937 | 3-3/4 | 5-1/8 | 6 | 14.55 |
| 10.50 | .4134 | 3-15/16 | 5-3/8 | 6 | 16.10 |
| 11.00 | .4331 | 4-1/16 | 5-1/2 | 6 | 16.73 |
| 11.50 | .4528 | 4-3/16 | 5-5/8 | 6 | 18.71 |

| Size | Dec. Equiv. | Flute Length | Overall Length | Pkg. Qty. | Price Each |
|-------|-------------|--------------|----------------|-----------|------------|
| 12.00 | .4724 | 4-3/8 | 5-7/8 | 6 | 20.81 |
| 12.50 | .4921 | 4-1/2 | 6 | 6 | 21.22 |
| 13.00 | .5118 | 4-1/2 | 6 | 1 | 21.22 |
| 13.50 | .5315 | 4-13/16 | 6-5/8 | 1 | 38.89 |
| 14.00 | .5512 | 4-13/16 | 6-5/8 | 1 | 38.89 |
| 14.50 | .5709 | 4-13/16 | 6-5/8 | 1 | 40.48 |
| 15.00 | .5906 | 5-3/16 | 7-1/8 | 1 | 40.48 |
| 15.50 | .6102 | 5-3/16 | 7-1/8 | 1 | 42.55 |
| 16.00 | .6299 | 5-3/16 | 7-1/8 | 1 | 45.13 |
| 16.50 | .6496 | 5-3/16 | 7-1/8 | 1 | 45.13 |
| 17.00 | .6693 | 5-5/8 | 7-5/8 | 1 | 48.08 |
| 17.50 | .6890 | 5-5/8 | 7-5/8 | 1 | 48.08 |



JOBBER LENGTH DRILLS

SLOW SPIRAL

► LIST NO. 300L — BRIGHT FINISH, 118° POINT

Please order in package quantity.



Slow spiral drills are designed for applications in brass, fiberglass, hard rubber and plastics. The open flute design allows the greatest volume of chip removal with high feed rates. They are also successfully used in shallow hole drilling of aluminum and magnesium alloys and die cast parts.

FRACTIONAL SIZES

| Size | Dec. Equiv. | Flute Length | Overall Length | Pkg. Qty. | Price Each |
|-------|-------------|--------------|----------------|-----------|------------|
| 1/64 | .0156 | 3/16 | 3/4 | 12 | 5.40 |
| 1/32 | .0312 | 1/2 | 1-3/8 | 12 | 3.47 |
| 3/64 | .0469 | 3/4 | 1-3/4 | 12 | 2.54 |
| 1/16 | .0625 | 7/8 | 1-7/8 | 12 | 2.34 |
| 5/64 | .0781 | 1 | 2 | 12 | 2.34 |
| 3/32 | .0938 | 1-1/4 | 2-1/4 | 12 | 2.29 |
| 7/64 | .1094 | 1-1/2 | 2-5/8 | 12 | 2.34 |
| 1/8 | .1250 | 1-5/8 | 2-3/4 | 12 | 2.29 |
| 9/64 | .1406 | 1-3/4 | 2-7/8 | 12 | 2.34 |
| 5/32 | .1562 | 2 | 3-1/8 | 12 | 2.82 |
| 11/64 | .1719 | 2-1/8 | 3-1/4 | 12 | 3.28 |

| Size | Dec. Equiv. | Flute Length | Overall Length | Pkg. Qty. | Price Each |
|-------|-------------|--------------|----------------|-----------|------------|
| 3/16 | .1875 | 2-5/16 | 3-1/2 | 12 | 3.26 |
| 13/64 | .2031 | 2-7/16 | 3-5/8 | 12 | 3.89 |
| 7/32 | .2188 | 2-1/2 | 3-3/4 | 12 | 4.41 |
| 15/64 | .2344 | 2-5/8 | 3-7/8 | 12 | 4.98 |
| 1/4 | .2500 | 2-3/4 | 4 | 12 | 4.65 |
| 17/64 | .2656 | 2-7/8 | 4-1/8 | 12 | 6.03 |
| 9/32 | .2812 | 2-15/16 | 4-1/4 | 6 | 6.28 |
| 19/64 | .2969 | 3-1/16 | 4-3/8 | 6 | 7.44 |
| 5/16 | .3125 | 3-3/16 | 4-1/2 | 6 | 7.71 |
| 21/64 | .3281 | 3-5/16 | 4-5/8 | 6 | 8.43 |
| 11/32 | .3438 | 3-7/16 | 4-3/4 | 6 | 9.33 |

| Size | Dec. Equiv. | Flute Length | Overall Length | Pkg. Qty. | Price Each |
|-------|-------------|--------------|----------------|-----------|------------|
| 23/64 | .3594 | 3-1/2 | 4-7/8 | 6 | 12.60 |
| 3/8 | .3750 | 3-5/8 | 5 | 6 | 11.13 |
| 25/64 | .3906 | 3-3/4 | 5-1/8 | 6 | 13.96 |
| 13/32 | .4062 | 3-7/8 | 5-1/4 | 6 | 12.83 |
| 27/64 | .4219 | 3-15/16 | 5-3/8 | 6 | 16.37 |
| 7/16 | .4375 | 4-1/16 | 5-1/2 | 6 | 14.88 |
| 29/64 | .4531 | 4-3/16 | 5-5/8 | 6 | 19.16 |
| 15/32 | .4688 | 4-5/16 | 5-3/4 | 6 | 18.26 |
| 31/64 | .4844 | 4-3/8 | 5-7/8 | 6 | 21.56 |
| 1/2 | .5000 | 4-1/2 | 6 | 6 | 19.06 |

LETTER SIZES

| Size | Dec. Equiv. | Flute Length | Overall Length | Pkg. Qty. | Price Each |
|------|-------------|--------------|----------------|-----------|------------|
| A | .2340 | 2-5/8 | 3-7/8 | 12 | 6.73 |
| B | .2380 | 2-3/4 | 4 | 12 | 6.73 |
| C | .2420 | 2-3/4 | 4 | 12 | 6.73 |
| D | .2460 | 2-3/4 | 4 | 12 | 6.73 |
| E | .2500 | 2-3/4 | 4 | 12 | 4.65 |
| F | .2570 | 2-7/8 | 4-1/8 | 12 | 6.73 |
| G | .2610 | 2-7/8 | 4-1/8 | 12 | 7.11 |
| H | .2660 | 2-7/8 | 4-1/8 | 12 | 9.42 |
| I | .2720 | 2-7/8 | 4-1/8 | 6 | 9.79 |

| Size | Dec. Equiv. | Flute Length | Overall Length | Pkg. Qty. | Price Each |
|------|-------------|--------------|----------------|-----------|------------|
| J | .2770 | 2-7/8 | 4-1/8 | 6 | 9.79 |
| K | .2810 | 2-15/16 | 4-1/4 | 6 | 9.79 |
| L | .2900 | 2-15/16 | 4-1/4 | 6 | 9.79 |
| M | .2950 | 3-1/16 | 4-3/8 | 6 | 10.60 |
| N | .3020 | 3-1/16 | 4-3/8 | 6 | 10.60 |
| O | .3160 | 3-3/16 | 4-1/2 | 6 | 11.55 |
| P | .3230 | 3-5/16 | 4-5/8 | 6 | 11.55 |
| Q | .3320 | 3-7/16 | 4-3/4 | 6 | 11.55 |
| R | .3390 | 3-7/16 | 4-3/4 | 6 | 13.27 |

| Size | Dec. Equiv. | Flute Length | Overall Length | Pkg. Qty. | Price Each |
|------|-------------|--------------|----------------|-----------|------------|
| S | .3480 | 3-1/2 | 4-7/8 | 6 | 13.90 |
| T | .3580 | 3-1/2 | 4-7/8 | 6 | 13.90 |
| U | .3680 | 3-5/8 | 5 | 6 | 13.90 |
| V | .3770 | 3-5/8 | 5 | 6 | 14.45 |
| W | .3860 | 3-3/4 | 5-1/8 | 6 | 17.09 |
| X | .3970 | 3-3/4 | 5-1/8 | 6 | 17.09 |
| Y | .4040 | 3-7/8 | 5-1/4 | 6 | 19.18 |
| Z | .4130 | 3-7/8 | 5-1/4 | 6 | 19.18 |

WIRE GAUGE SIZES

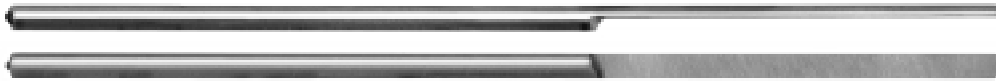
| Size | Dec. Equiv. | Flute Length | Overall Length | Pkg. Qty. | Price Each |
|------|-------------|--------------|----------------|-----------|------------|
| 1 | .2280 | 2-5/8 | 3-7/8 | 12 | 5.44 |
| 2 | .2210 | 2-5/8 | 3-7/8 | 12 | 5.44 |
| 3 | .2130 | 2-1/2 | 3-3/4 | 12 | 5.23 |
| 4 | .2090 | 2-1/2 | 3-3/4 | 12 | 5.23 |
| 5 | .2055 | 2-1/2 | 3-3/4 | 12 | 5.23 |
| 6 | .2040 | 2-1/2 | 3-3/4 | 12 | 5.23 |
| 7 | .2010 | 2-7/16 | 3-5/8 | 12 | 4.48 |
| 8 | .1990 | 2-7/16 | 3-5/8 | 12 | 4.48 |
| 9 | .1960 | 2-7/16 | 3-5/8 | 12 | 4.48 |
| 10 | .1935 | 2-7/16 | 3-5/8 | 12 | 4.48 |
| 11 | .1910 | 2-5/16 | 3-1/2 | 12 | 4.17 |
| 12 | .1890 | 2-5/16 | 3-1/2 | 12 | 4.17 |
| 13 | .1850 | 2-5/16 | 3-1/2 | 12 | 3.89 |
| 14 | .1820 | 2-3/16 | 3-3/8 | 12 | 3.89 |
| 15 | .1800 | 2-3/16 | 3-3/8 | 12 | 3.89 |
| 16 | .1770 | 2-3/16 | 3-3/8 | 12 | 3.89 |
| 17 | .1730 | 2-3/16 | 3-3/8 | 12 | 3.89 |
| 18 | .1695 | 2-1/8 | 3-1/4 | 12 | 3.45 |
| 19 | .1660 | 2-1/8 | 3-1/4 | 12 | 3.45 |
| 20 | .1610 | 2-1/8 | 3-1/4 | 12 | 3.45 |
| 21 | .1590 | 2-1/8 | 3-1/4 | 12 | 3.35 |
| 22 | .1570 | 2 | 3-1/8 | 12 | 3.35 |
| 23 | .1540 | 2 | 3-1/8 | 12 | 3.35 |
| 24 | .1520 | 2 | 3-1/8 | 12 | 3.23 |
| 25 | .1495 | 1-7/8 | 3 | 12 | 3.23 |
| 26 | .1470 | 1-7/8 | 3 | 12 | 2.96 |
| 27 | .1440 | 1-7/8 | 3 | 12 | 2.96 |

| Size | Dec. Equiv. | Flute Length | Overall Length | Pkg. Qty. | Price Each |
|------|-------------|--------------|----------------|-----------|------------|
| 28 | .1405 | 1-3/4 | 2-7/8 | 12 | 2.96 |
| 29 | .1360 | 1-3/4 | 2-7/8 | 12 | 2.57 |
| 30 | .1285 | 1-5/8 | 2-3/4 | 12 | 2.57 |
| 31 | .1200 | 1-5/8 | 2-3/4 | 12 | 2.57 |
| 32 | .1160 | 1-5/8 | 2-3/4 | 12 | 2.57 |
| 33 | .1130 | 1-1/2 | 2-5/8 | 12 | 2.57 |
| 34 | .1110 | 1-1/2 | 2-5/8 | 12 | 2.57 |
| 35 | .1100 | 1-1/2 | 2-5/8 | 12 | 2.57 |
| 36 | .1065 | 1-7/16 | 2-1/2 | 12 | 2.57 |
| 37 | .1040 | 1-7/16 | 2-1/2 | 12 | 2.57 |
| 38 | .1015 | 1-7/16 | 2-1/2 | 12 | 2.57 |
| 39 | .0995 | 1-3/8 | 2-3/8 | 12 | 2.57 |
| 40 | .0980 | 1-3/8 | 2-3/8 | 12 | 2.57 |
| 41 | .0960 | 1-3/8 | 2-3/8 | 12 | 2.61 |
| 42 | .0935 | 1-1/4 | 2-1/4 | 12 | 2.61 |
| 43 | .0890 | 1-1/4 | 2-1/4 | 12 | 2.61 |
| 44 | .0860 | 1-1/8 | 2-1/8 | 12 | 2.61 |
| 45 | .0820 | 1-1/8 | 2-1/8 | 12 | 2.61 |
| 46 | .0810 | 1-1/8 | 2-1/8 | 12 | 2.61 |
| 47 | .0785 | 1 | 2 | 12 | 2.61 |
| 48 | .0760 | 1 | 2 | 12 | 2.61 |
| 49 | .0730 | 1 | 2 | 12 | 2.61 |
| 50 | .0700 | 1 | 2 | 12 | 2.61 |
| 51 | .0670 | 1 | 2 | 12 | 2.61 |
| 52 | .0635 | 7/8 | 1-7/8 | 12 | 2.61 |
| 53 | .0595 | 7/8 | 1-7/8 | 12 | 2.54 |
| 54 | .0550 | 7/8 | 1-7/8 | 12 | 2.54 |

| Size | Dec. Equiv. | Flute Length | Overall Length | Pkg. Qty. | Price Each |
|------|-------------|--------------|----------------|-----------|------------|
| 55 | .0520 | 7/8 | 1-7/8 | 12 | 2.54 |
| 56 | .0465 | 3/4 | 1-3/4 | 12 | 2.54 |
| 57 | .0430 | 3/4 | 1-3/4 | 12 | 2.54 |
| 58 | .0420 | 11/16 | 1-5/8 | 12 | 2.54 |
| 59 | .0410 | 11/16 | 1-5/8 | 12 | 2.54 |
| 60 | .0400 | 11/16 | 1-5/8 | 12 | 2.54 |
| 61 | .0390 | 11/16 | 1-5/8 | 12 | 3.15 |
| 62 | .0380 | 5/8 | 1-1/2 | 12 | 3.15 |
| 63 | .0370 | 5/8 | 1-1/2 | 12 | 3.15 |
| 64 | .0360 | 5/8 | 1-1/2 | 12 | 3.15 |
| 65 | .0350 | 5/8 | 1-1/2 | 12 | 3.15 |
| 66 | .0330 | 1/2 | 1-3/8 | 12 | 3.15 |
| 67 | .0320 | 1/2 | 1-3/8 | 12 | 3.15 |
| 68 | .0310 | 1/2 | 1-3/8 | 12 | 3.15 |
| 69 | .0292 | 1/2 | 1-3/8 | 12 | 3.48 |
| 70 | .0280 | 3/8 | 1-1/4 | 12 | 3.48 |
| 71 | .0260 | 3/8 | 1-1/4 | 12 | 4.55 |
| 72 | .0250 | 5/16 | 1-1/8 | 12 | 4.55 |
| 73 | .0240 | 5/16 | 1-1/8 | 12 | 4.55 |
| 74 | .0225 | 1/4 | 1 | 12 | 4.55 |
| 75 | .0210 | 1/4 | 1 | 12 | 4.55 |
| 76 | .0200 | 3/16 | 7/8 | 12 | 4.55 |
| 77 | .0180 | 3/16 | 7/8 | 12 | 4.55 |
| 78 | .0160 | 3/16 | 7/8 | 12 | 4.55 |
| 79 | .0145 | 1/8 | 3/4 | 12 | 5.40 |
| 80 | .0135 | 1/8 | 3/4 | 12 | 5.40 |

HALF ROUND JOBBER DRILLS

● LIST NO. 300HR



These drills allow greater chip clearance and have less tendency to run out in deep hole drilling operations. As a result, hole sizes are more accurate. They can be used in drilling brass, copper, hard rubber, fiberglass and other materials.

FRACTIONAL SIZES

| Size | Dec. Equiv. | Flute Length | Overall Length | Price Each |
|-------|-------------|--------------|----------------|------------|
| 1/16 | .0625 | 7/8 | 1-7/8 | 8.50 |
| 5/64 | .0781 | 1 | 2 | 8.50 |
| 3/32 | .0938 | 1-1/4 | 2-1/4 | 8.50 |
| 7/64 | .1094 | 1-1/2 | 2-5/8 | 9.05 |
| 1/8 | .1250 | 1-5/8 | 2-3/4 | 9.63 |
| 9/64 | .1406 | 1-3/4 | 2-7/8 | 9.63 |
| 5/32 | .1562 | 2 | 3-1/8 | 9.95 |
| 11/64 | .1719 | 2-1/8 | 3-1/4 | 10.97 |
| 3/16 | .1875 | 2-5/16 | 3-1/2 | 11.95 |
| 13/64 | .2031 | 2-7/16 | 3-5/8 | 13.95 |

| Size | Dec. Equiv. | Flute Length | Overall Length | Price Each |
|-------|-------------|--------------|----------------|------------|
| 7/32 | .2188 | 2-1/2 | 3-3/4 | 15.06 |
| 15/64 | .2344 | 2-5/8 | 3-7/8 | 16.50 |
| 1/4 | .2500 | 2-3/4 | 4 | 17.07 |
| 17/64 | .2656 | 2-7/8 | 4-1/8 | 21.30 |
| 9/32 | .2812 | 2-15/16 | 4-1/4 | 21.90 |
| 19/64 | .2969 | 3-1/16 | 4-3/8 | 25.50 |
| 5/16 | .3125 | 3-3/16 | 4-1/2 | 26.90 |
| 21/64 | .3281 | 3-5/16 | 4-5/8 | 30.52 |
| 11/32 | .3438 | 3-7/16 | 4-3/4 | 33.15 |
| 23/64 | .3594 | 3-1/2 | 4-7/8 | 38.34 |

| Size | Dec. Equiv. | Flute Length | Overall Length | Price Each |
|-------|-------------|--------------|----------------|------------|
| 3/8 | .3750 | 3-5/8 | 5 | 38.34 |
| 25/64 | .3906 | 3-3/4 | 5-1/8 | 44.74 |
| 13/32 | .4062 | 3-7/8 | 5-1/4 | 44.90 |
| 27/64 | .4219 | 3-15/16 | 5-3/8 | 51.68 |
| 7/16 | .4375 | 4-1/16 | 5-1/2 | 51.50 |
| 29/64 | .4531 | 4-3/16 | 5-5/8 | 59.92 |
| 15/32 | .4688 | 4-5/16 | 5-3/4 | 61.17 |
| 31/64 | .4844 | 4-3/8 | 5-7/8 | 67.00 |
| 1/2 | .5000 | 4-1/2 | 6 | 65.75 |

WIRE GAUGE SIZES

| Size | Dec. Equiv. | Flute Length | Overall Length | Price Each |
|------|-------------|--------------|----------------|------------|
| 1 | .2280 | 2-5/8 | 3-7/8 | 13.70 |
| 2 | .2210 | 2-5/8 | 3-7/8 | 13.70 |
| 3 | .2130 | 2-1/2 | 3-3/4 | 12.22 |
| 4 | .2090 | 2-1/2 | 3-3/4 | 12.22 |
| 5 | .2055 | 2-1/2 | 3-3/4 | 12.22 |
| 6 | .2040 | 2-1/2 | 3-3/4 | 12.22 |
| 7 | .2010 | 2-7/16 | 3-5/8 | 10.85 |
| 8 | .1990 | 2-7/16 | 3-5/8 | 10.85 |
| 9 | .1960 | 2-7/16 | 3-5/8 | 10.85 |
| 10 | .1935 | 2-7/16 | 3-5/8 | 10.85 |
| 11 | .1910 | 2-5/16 | 3-1/2 | 10.85 |
| 12 | .1890 | 2-5/16 | 3-1/2 | 10.85 |
| 13 | .1850 | 2-5/16 | 3-1/2 | 9.59 |
| 14 | .1820 | 2-3/16 | 3-3/8 | 9.59 |
| 15 | .1800 | 2-3/16 | 3-3/8 | 9.59 |
| 16 | .1770 | 2-3/16 | 3-3/8 | 9.59 |
| 17 | .1730 | 2-3/16 | 3-3/8 | 9.59 |
| 18 | .1695 | 2-1/8 | 3-1/4 | 9.03 |
| 19 | .1660 | 2-1/8 | 3-1/4 | 9.03 |

| Size | Dec. Equiv. | Flute Length | Overall Length | Price Each |
|------|-------------|--------------|----------------|------------|
| 20 | .1610 | 2-1/8 | 3-1/4 | 9.03 |
| 21 | .1590 | 2-1/8 | 3-1/4 | 9.03 |
| 22 | .1570 | 2 | 3-1/8 | 9.03 |
| 23 | .1540 | 2 | 3-1/8 | 8.80 |
| 24 | .1520 | 2 | 3-1/8 | 8.80 |
| 25 | .1495 | 1-7/8 | 3 | 8.80 |
| 26 | .1470 | 1-7/8 | 3 | 8.80 |
| 27 | .1440 | 1-7/8 | 3 | 8.80 |
| 28 | .1405 | 1-3/4 | 2-7/8 | 8.80 |
| 29 | .1360 | 1-3/4 | 2-7/8 | 8.80 |
| 30 | .1285 | 1-5/8 | 2-3/4 | 8.80 |
| 31 | .1200 | 1-5/8 | 2-3/4 | 8.21 |
| 32 | .1160 | 1-5/8 | 2-3/4 | 8.21 |
| 33 | .1130 | 1-1/2 | 2-5/8 | 8.21 |
| 34 | .1110 | 1-1/2 | 2-5/8 | 8.21 |
| 35 | .1100 | 1-1/2 | 2-5/8 | 8.21 |
| 36 | .1065 | 1-7/16 | 2-1/2 | 7.70 |
| 37 | .1040 | 1-7/16 | 2-1/2 | 7.70 |
| 38 | .1015 | 1-7/16 | 2-1/2 | 7.70 |

| Size | Dec. Equiv. | Flute Length | Overall Length | Price Each |
|------|-------------|--------------|----------------|------------|
| 39 | .0995 | 1-3/8 | 2-3/8 | 7.70 |
| 40 | .0980 | 1-3/8 | 2-3/8 | 7.70 |
| 41 | .0960 | 1-3/8 | 2-3/8 | 7.86 |
| 42 | .0935 | 1-1/4 | 2-1/4 | 7.86 |
| 43 | .0890 | 1-1/4 | 2-1/4 | 7.86 |
| 44 | .0860 | 1-1/8 | 2-1/8 | 7.86 |
| 45 | .0820 | 1-1/8 | 2-1/8 | 7.86 |
| 46 | .0810 | 1-1/8 | 2-1/8 | 7.86 |
| 47 | .0785 | 1 | 2 | 7.86 |
| 48 | .0760 | 1 | 2 | 7.86 |
| 49 | .0730 | 1 | 2 | 7.86 |
| 50 | .0700 | 1 | 2 | 7.86 |
| 51 | .0670 | 1 | 2 | 7.86 |
| 52 | .0635 | 7/8 | 1-7/8 | 7.86 |
| 56 | .0465 | 3/4 | 1-3/8 | 7.86 |
| 57 | .0430 | 3/4 | 1-3/8 | 7.86 |
| 59 | .0410 | 11/16 | 1-5/8 | 7.86 |
| 60 | .0400 | 11/16 | 1-5/8 | 7.86 |

HIGH SPEED STEEL

VENT DRILLS

FAST SPIRAL

■ LIST NO. 380

To drill vent holes in tire molds and to clean the vent holes after tire production.

| Size | Dec. Equiv. | Flute Length | Overall Length | Price Each |
|------|-------------|--------------|----------------|------------|
| 74 | .0225 | 1 | 2 | 3.99 |
| 74 | .0225 | 1 | 3 | 4.40 |
| 73 | .0240 | 5/8 | 1-1/2 | 4.20 |
| 69 | .0292 | 2 | 3 | 4.75 |
| 68 | .0320 | 2 | 6 | 7.20 |
| 60 | .0400 | 1-1/2 | 2-1/2 | 3.65 |
| 60 | .0400 | 3 | 4 | 4.50 |
| 60 | .0400 | 4 | 6 | 5.95 |
| 58 | .0420 | 2 | 3 | 4.25 |
| 58 | .0420 | 3 | 4 | 4.75 |
| 57 | .0430 | 2 | 3 | 3.95 |

| Size | Dec. Equiv. | Flute Length | Overall Length | Price Each |
|------|-------------|--------------|----------------|------------|
| 57 | .0430 | 2-1/2 | 3-1/2 | 4.50 |
| 57 | .0430 | 3 | 4 | 4.90 |
| 57 | .0430 | 4 | 6 | 6.24 |
| 3/64 | .0469 | 2 | 3 | 4.10 |
| 55 | .0520 | 2-1/4 | 3 | 4.25 |
| 55 | .0520 | 2-1/2 | 4-1/2 | 5.20 |
| 55 | .0520 | 3 | 4 | 4.99 |
| 55 | .0520 | 3-1/2 | 6-1/4 | 6.95 |
| 54 | .0550 | 4 | 6 | 6.50 |
| 1/16 | .0625 | 2-1/2 | 3-1/2 | 4.71 |
| 1/16 | .0625 | 3 | 4 | 5.12 |

| Size | Dec. Equiv. | Flute Length | Overall Length | Price Each |
|------|-------------|--------------|----------------|------------|
| 1/16 | .0625 | 4 | 6 | 6.95 |
| 1/16 | .0625 | 5 | 7 | 8.20 |
| 52 | .0635 | 4 | 5 | 6.00 |
| 51 | .0670 | 2 | 3 | 4.50 |
| 50 | .0700 | 2-1/2 | 4-1/2 | 5.65 |
| 50 | .0700 | 3 | 4 | 5.26 |
| 50 | .0700 | 3 | 5 | 6.10 |
| 50 | .0700 | 4 | 6 | 7.20 |
| 45 | .0820 | 2 | 3 | 5.50 |
| 45 | .0820 | 2-1/4 | 4-1/2 | 6.72 |
| 3/32 | .0938 | 4 | 6 | 7.50 |



HIGH SPEED STEEL

LEFT HAND DRILLS

JOBBER LENGTH, 118° POINT

► LIST NO. 300LH

Please order in package quantity.



SET NO. 307FL

29 Piece Fractional

Left Hand Jobber Set

1/16 - 1/2 x 64ths in Metal Index

SET PRICE — \$410.00

For use in left hand spindle rotation on screw machines and drill heads.
Can be used as screw extractor for drilling out broken studs or fasteners.

FRACTIONAL SIZES

| Size | Dec. Equiv. | Flute Length | Overall Length | Pkg. Qty. | Price Each |
|-------|-------------|--------------|----------------|-----------|------------|
| 1/64 | .0156 | 3/16 | 3/4 | 12 | 10.99 |
| 1/32 | .0312 | 1/2 | 1-3/8 | 12 | 6.63 |
| 3/64 | .0469 | 3/4 | 1-3/4 | 12 | 4.35 |
| 1/16 | .0625 | 7/8 | 1-7/8 | 12 | 4.35 |
| 5/64 | .0781 | 1 | 2 | 12 | 4.35 |
| 3/32 | .0938 | 1-1/4 | 2-1/4 | 12 | 4.54 |
| 7/64 | .1094 | 1-1/2 | 2-5/8 | 12 | 4.73 |
| 1/8 | .1250 | 1-5/8 | 2-3/4 | 12 | 4.73 |
| 9/64 | .1406 | 1-3/4 | 2-7/8 | 12 | 4.90 |
| 5/32 | .1562 | 2 | 3-1/8 | 12 | 5.48 |
| 11/64 | .1719 | 2-1/8 | 3-1/4 | 12 | 6.38 |

| Size | Dec. Equiv. | Flute Length | Overall Length | Pkg. Qty. | Price Each |
|-------|-------------|--------------|----------------|-----------|------------|
| 3/16 | .1875 | 2-5/16 | 3-1/2 | 12 | 6.85 |
| 13/64 | .2031 | 2-7/16 | 3-5/8 | 12 | 7.08 |
| 7/32 | .2188 | 2-1/2 | 3-3/4 | 12 | 6.85 |
| 15/64 | .2344 | 2-5/8 | 3-7/8 | 12 | 9.82 |
| 1/4 | .2500 | 2-3/4 | 4 | 12 | 9.45 |
| 17/64 | .2656 | 2-7/8 | 4-1/8 | 12 | 10.39 |
| 9/32 | .2812 | 2-15/16 | 4-1/4 | 6 | 10.35 |
| 19/64 | .2969 | 3-1/16 | 4-3/8 | 6 | 11.74 |
| 5/16 | .3125 | 3-3/16 | 4-1/2 | 6 | 12.07 |
| 21/64 | .3281 | 3-5/16 | 4-5/8 | 6 | 13.65 |
| 11/32 | .3438 | 3-7/16 | 4-3/4 | 6 | 14.87 |

| Size | Dec. Equiv. | Flute Length | Overall Length | Pkg. Qty. | Price Each |
|-------|-------------|--------------|----------------|-----------|------------|
| 23/64 | .3594 | 3-1/2 | 4-7/8 | 6 | 17.95 |
| 3/8 | .3750 | 3-5/8 | 5 | 6 | 18.18 |
| 25/64 | .3906 | 3-3/4 | 5-1/8 | 6 | 20.65 |
| 13/32 | .4062 | 3-7/8 | 5-1/4 | 6 | 20.70 |
| 27/64 | .4219 | 3-15/16 | 5-3/8 | 6 | 24.19 |
| 7/16 | .4375 | 4-1/16 | 5-1/2 | 6 | 24.39 |
| 29/64 | .4531 | 4-3/16 | 5-5/8 | 6 | 28.85 |
| 15/32 | .4688 | 4-5/16 | 5-3/4 | 6 | 29.58 |
| 31/64 | .4844 | 4-3/8 | 5-7/8 | 6 | 32.40 |
| 1/2 | .5000 | 4-1/2 | 6 | 6 | 31.24 |

LETTER SIZES

| Size | Dec. Equiv. | Flute Length | Overall Length | Pkg. Qty. | Price Each |
|------|-------------|--------------|----------------|-----------|------------|
| A | .2340 | 2-5/8 | 3-7/8 | 12 | 10.80 |
| B | .2380 | 2-3/4 | 4 | 12 | 10.80 |
| C | .2420 | 2-3/4 | 4 | 12 | 10.80 |
| D | .2460 | 2-3/4 | 4 | 12 | 10.80 |
| E | .2500 | 2-3/4 | 4 | 12 | 9.45 |
| F | .2570 | 2-7/8 | 4-1/8 | 12 | 11.60 |
| G | .2610 | 2-7/8 | 4-1/8 | 12 | 11.60 |
| H | .2660 | 2-7/8 | 4-1/8 | 12 | 11.60 |
| I | .2720 | 2-7/8 | 4-1/8 | 6 | 11.60 |

| Size | Dec. Equiv. | Flute Length | Overall Length | Pkg. Qty. | Price Each |
|------|-------------|--------------|----------------|-----------|------------|
| J | .2770 | 2-7/8 | 4-1/8 | 6 | 11.60 |
| K | .2810 | 2-15/16 | 4-1/4 | 6 | 11.60 |
| L | .2900 | 2-15/16 | 4-1/4 | 6 | 11.60 |
| M | .2950 | 3-1/16 | 4-3/8 | 6 | 13.15 |
| N | .3020 | 3-1/16 | 4-3/8 | 6 | 13.50 |
| O | .3160 | 3-3/16 | 4-1/2 | 6 | 15.08 |
| P | .3230 | 3-5/16 | 4-5/8 | 6 | 16.65 |
| Q | .3320 | 3-7/16 | 4-3/4 | 6 | 17.20 |
| R | .3390 | 3-7/16 | 4-3/4 | 6 | 17.20 |

| Size | Dec. Equiv. | Flute Length | Overall Length | Pkg. Qty. | Price Each |
|------|-------------|--------------|----------------|-----------|------------|
| S | .3480 | 3-1/2 | 4-7/8 | 6 | 20.16 |
| T | .3580 | 3-1/2 | 4-7/8 | 6 | 20.36 |
| U | .3680 | 3-5/8 | 5 | 6 | 21.20 |
| V | .3770 | 3-5/8 | 5 | 6 | 23.12 |
| W | .3860 | 3-3/4 | 5-1/8 | 6 | 23.50 |
| X | .3970 | 3-3/4 | 5-1/8 | 6 | 23.50 |
| Y | .4040 | 3-7/8 | 5-1/4 | 6 | 24.70 |
| Z | .4130 | 3-7/8 | 5-1/4 | 6 | 27.10 |

WIRE GAUGE SIZES

| Size | Dec. Equiv. | Flute Length | Overall Length | Pkg. Qty. | Price Each |
|------|-------------|--------------|----------------|-----------|------------|
| 1 | .2280 | 2-5/8 | 3-7/8 | 12 | 9.54 |
| 2 | .2210 | 2-5/8 | 3-7/8 | 12 | 9.54 |
| 3 | .2130 | 2-1/2 | 3-3/4 | 12 | 8.99 |
| 4 | .2090 | 2-1/2 | 3-3/4 | 12 | 8.99 |
| 5 | .2055 | 2-1/2 | 3-3/4 | 12 | 8.99 |
| 6 | .2040 | 2-1/2 | 3-3/4 | 12 | 8.99 |
| 7 | .2010 | 2-7/16 | 3-5/8 | 12 | 7.57 |
| 8 | .1990 | 2-7/16 | 3-5/8 | 12 | 7.57 |
| 9 | .1960 | 2-7/16 | 3-5/8 | 12 | 7.57 |
| 10 | .1935 | 2-7/16 | 3-5/8 | 12 | 7.57 |
| 11 | .1910 | 2-5/16 | 3-1/2 | 12 | 7.30 |
| 12 | .1890 | 2-5/16 | 3-1/2 | 12 | 7.30 |
| 13 | .1850 | 2-5/16 | 3-1/2 | 12 | 6.76 |
| 14 | .1820 | 2-3/16 | 3-3/8 | 12 | 6.76 |
| 15 | .1800 | 2-3/16 | 3-3/8 | 12 | 6.76 |
| 16 | .1770 | 2-3/16 | 3-3/8 | 12 | 6.76 |
| 17 | .1730 | 2-3/16 | 3-3/8 | 12 | 6.76 |
| 18 | .1695 | 2-1/8 | 3-1/4 | 12 | 5.94 |
| 19 | .1660 | 2-1/8 | 3-1/4 | 12 | 5.94 |
| 20 | .1610 | 2-1/8 | 3-1/4 | 12 | 5.94 |
| 21 | .1590 | 2-1/8 | 3-1/4 | 12 | 5.65 |
| 22 | .1570 | 2 | 3-1/8 | 12 | 5.65 |
| 23 | .1540 | 2 | 3-1/8 | 12 | 5.42 |
| 24 | .1520 | 2 | 3-1/8 | 12 | 5.42 |
| 25 | .1495 | 1-7/8 | 3 | 12 | 5.20 |
| 26 | .1470 | 1-7/8 | 3 | 12 | 5.20 |
| 27 | .1440 | 1-7/8 | 3 | 12 | 5.20 |

| Size | Dec. Equiv. | Flute Length | Overall Length | Pkg. Qty. | Price Each |
|------|-------------|--------------|----------------|-----------|------------|
| 28 | .1405 | 1-3/4 | 2-7/8 | 12 | 4.62 |
| 29 | .1360 | 1-3/4 | 2-7/8 | 12 | 4.62 |
| 30 | .1285 | 1-5/8 | 2-3/4 | 12 | 4.62 |
| 31 | .1200 | 1-5/8 | 2-3/4 | 12 | 4.62 |
| 32 | .1160 | 1-5/8 | 2-3/4 | 12 | 4.62 |
| 33 | .1130 | 1-1/2 | 2-5/8 | 12 | 4.62 |
| 34 | .1110 | 1-1/2 | 2-5/8 | 12 | 4.62 |
| 35 | .1100 | 1-1/2 | 2-5/8 | 12 | 4.62 |
| 36 | .1065 | 1-7/16 | 2-1/2 | 12 | 4.62 |
| 37 | .1040 | 1-7/16 | 2-1/2 | 12 | 4.62 |
| 38 | .1015 | 1-7/16 | 2-1/2 | 12 | 4.62 |
| 39 | .0995 | 1-3/8 | 2-3/8 | 12 | 4.62 |
| 40 | .0980 | 1-3/8 | 2-3/8 | 12 | 4.62 |
| 41 | .0960 | 1-3/8 | 2-3/8 | 12 | 4.62 |
| 42 | .0935 | 1-1/4 | 2-1/4 | 12 | 4.62 |
| 43 | .0890 | 1-1/4 | 2-1/4 | 12 | 4.62 |
| 44 | .0860 | 1-1/8 | 2-1/8 | 12 | 4.62 |
| 45 | .0820 | 1-1/8 | 2-1/8 | 12 | 4.62 |
| 46 | .0810 | 1-1/8 | 2-1/8 | 12 | 4.62 |
| 47 | .0785 | 1 | 2 | 12 | 4.62 |
| 48 | .0760 | 1 | 2 | 12 | 4.62 |
| 49 | .0730 | 1 | 2 | 12 | 4.62 |
| 50 | .0700 | 1 | 2 | 12 | 4.62 |
| 51 | .0670 | 1 | 2 | 12 | 4.71 |
| 52 | .0635 | 7/8 | 1-7/8 | 12 | 4.71 |
| 53 | .0595 | 7/8 | 1-7/8 | 12 | 4.71 |
| 54 | .0550 | 7/8 | 1-7/8 | 12 | 4.71 |

| Size | Dec. Equiv. | Flute Length | Overall Length | Pkg. Qty. | Price Each |
|------|-------------|--------------|----------------|-----------|------------|
| 55 | .0520 | 7/8 | 1-7/8 | 12 | 4.71 |
| 56 | .0465 | 3/4 | 1-3/4 | 12 | 4.71 |
| 57 | .0430 | 3/4 | 1-3/4 | 12 | 4.71 |
| 58 | .0420 | 11/16 | 1-5/8 | 12 | 4.71 |
| 59 | .0410 | 11/16 | 1-5/8 | 12 | 4.71 |
| 60 | .0400 | 11/16 | 1-5/8 | 12 | 4.71 |
| 61 | .0390 | 11/16 | 1-5/8 | 12 | 5.01 |
| 62 | .0380 | 5/8 | 1-1/2 | 12 | 10.02 |
| 63 | .0370 | 5/8 | 1-1/2 | 12 | 10.02 |
| 64 | .0360 | 5/8 | 1-1/2 | 12 | 10.02 |
| 65 | .0350 | 5/8 | 1-1/2 | 12 | 10.02 |
| 66 | .0330 | 1/2 | 1-3/8 | 12 | 10.02 |
| 67 | .0320 | 1/2 | 1-3/8 | 12 | 10.02 |
| 68 | .0310 | 1/2 | 1-3/8 | 12 | 10.02 |
| 69 | .0292 | 1/2 | 1-3/8 | 12 | 10.66 |
| 70 | .0280 | 3/8 | 1-1/4 | 12 | 10.66 |
| 71 | .0260 | 3/8 | 1-1/4 | 12 | 10.66 |
| 72 | .0250 | 5/16 | 1-1/8 | 12 | 10.66 |
| 73 | .0240 | 5/16 | 1-1/8 | 12 | 10.66 |
| 74 | .0225 | 1/4 | 1 | 12 | 10.66 |
| 75 | .0210 | 1/4 | 1 | 12 | 10.66 |
| 76 | .0200 | 3/16 | 7/8 | 12 | 10.66 |
| 77 | .0180 | 3/16 | 7/8 | 12 | 10.66 |
| 78 | .0160 | 3/16 | 7/8 | 12 | 10.66 |
| 79 | .0145 | 1/8 | 3/4 | 12 | 12.45 |
| 80 | .0135 | 1/8 | 3/4 | 12 | 12.45 |

DRILL AND REAMER BLANKS



TOLERANCE LIMITS

- ▶ LIST NO. 950D — DRILL BLANKS — TO 1/2" + .0000/ - .0003", TO 1" + .0000"/ - .0005"
- LIST NO. 950R — REAMER BLANKS — + .0002"/ - .0000"

Please order in package quantity.

- #80 — Letter "H" — 12 Pc. Per Pkg.
- Letter "I" — 1/2" — 6 Pc. Per Pkg.
- 33/64" — 1" — 1 Pc. Per Pkg.

SET NO. 950SF

29 Piece Fractional Drill Blank Set

1/16 - 1/2 x 64ths in Metal Case

SET PRICE — \$250.00

Made from hardened (Rc 63-65) High Speed Steel and ground, these Drill and Reamer Blanks can be used as punches, gauges, pins or ground for special tools.

FRACTIONAL SIZES

| Size | Dec. Equiv. | Overall Length | Price Each | |
|-------|-------------|----------------|---------------------------|----------------------------|
| | | | Drill Blank List No. 950D | Reamer Blank List No. 950R |
| 1/64 | .0156 | 3/4 | 2.64 | 2.64 |
| 1/32 | .0312 | 1-3/8 | 2.64 | 2.64 |
| 3/64 | .0469 | 1-3/4 | 2.86 | 2.86 |
| 1/16 | .0625 | 1-7/8 | 2.78 | 2.78 |
| 5/64 | .0781 | 2 | 2.95 | 2.95 |
| 3/32 | .0938 | 2-1/4 | 2.87 | 2.87 |
| 7/64 | .1094 | 2-5/8 | 2.95 | 2.95 |
| 1/8 | .1250 | 2-3/4 | 2.81 | 2.81 |
| 9/64 | .1406 | 2-7/8 | 2.95 | 2.95 |
| 5/32 | .1562 | 3-1/8 | 3.24 | 3.24 |
| 11/64 | .1719 | 3-1/4 | 3.24 | 3.24 |
| 3/16 | .1875 | 3-1/2 | 3.64 | 3.64 |
| 13/64 | .2031 | 3-5/8 | 4.74 | 4.74 |
| 7/32 | .2188 | 3-3/4 | 4.77 | 4.77 |
| 15/64 | .2344 | 3-7/8 | 5.36 | 5.36 |
| 1/4 | .2500 | 4 | 5.54 | 5.54 |
| 17/64 | .2656 | 4-1/8 | 6.29 | 6.29 |
| 9/32 | .2812 | 4-1/4 | 6.79 | 6.79 |
| 19/64 | .2969 | 4-3/8 | 7.54 | 7.54 |
| 5/16 | .3125 | 4-1/2 | 7.40 | 7.40 |
| 21/64 | .3281 | 4-5/8 | 8.54 | 8.54 |
| 11/32 | .3438 | 4-3/4 | 9.16 | 9.16 |

| Size | Dec. Equiv. | Overall Length | Price Each | |
|-------|-------------|----------------|---------------------------|----------------------------|
| | | | Drill Blank List No. 950D | Reamer Blank List No. 950R |
| 23/64 | .3594 | 4-7/8 | 10.31 | 10.31 |
| 3/8 | .3750 | 5 | 10.80 | 10.80 |
| 25/64 | .3906 | 5-1/8 | 11.77 | 11.77 |
| 13/32 | .4062 | 5-1/4 | 12.76 | 12.76 |
| 27/64 | .4219 | 5-3/8 | 14.29 | 14.29 |
| 7/16 | .4375 | 5-1/2 | 15.73 | 15.73 |
| 29/64 | .4531 | 5-5/8 | 16.57 | 16.57 |
| 15/32 | .4688 | 5-3/4 | 16.85 | 16.85 |
| 31/64 | .4844 | 5-7/8 | 19.11 | 19.11 |
| 1/2 | .5000 | 6 | 19.26 | 19.26 |
| 33/64 | .5156 | 6 | 27.11 | — |
| 17/32 | .5312 | 6 | 28.42 | 28.42 |
| 35/64 | .5469 | 6 | 27.11 | — |
| 9/16 | .5625 | 6 | 29.60 | 29.60 |
| 37/64 | .5781 | 6 | 33.95 | — |
| 19/32 | .5938 | 6 | 33.95 | 33.95 |
| 39/64 | .6094 | 6 | 33.32 | — |
| 5/8 | .6250 | 6 | 33.32 | 33.32 |
| 41/64 | .6406 | 6 | 39.25 | — |
| 21/32 | .6562 | 6 | 39.25 | 39.25 |
| 43/64 | .6719 | 6 | 43.02 | — |
| 11/16 | .6875 | 6 | 43.02 | 43.02 |

| Size | Dec. Equiv. | Overall Length | Price Each | |
|-------|-------------|----------------|---------------------------|----------------------------|
| | | | Drill Blank List No. 950D | Reamer Blank List No. 950R |
| 45/64 | .7031 | 6 | 43.02 | — |
| 23/32 | .7188 | 6 | 43.02 | 43.02 |
| 47/64 | .7344 | 6 | 44.58 | — |
| 3/4 | .7500 | 6 | 44.58 | 44.58 |
| 49/64 | .7656 | 6 | 48.65 | — |
| 25/32 | .7812 | 6 | 48.65 | — |
| 51/64 | .7969 | 6 | 51.83 | — |
| 13/16 | .8125 | 6 | 51.83 | 51.83 |
| 53/64 | .8281 | 6 | 57.50 | — |
| 27/32 | .8438 | 6 | 57.50 | — |
| 55/64 | .8594 | 6 | 61.03 | — |
| 7/8 | .8750 | 6 | 61.03 | 61.03 |
| 57/64 | .8906 | 6 | 66.40 | — |
| 29/32 | .9062 | 6 | 66.40 | — |
| 59/64 | .9219 | 6 | 70.46 | — |
| 15/16 | .9375 | 6 | 70.46 | 70.46 |
| 61/64 | .9531 | 6 | 73.28 | — |
| 31/32 | .9688 | 6 | 73.28 | — |
| 63/64 | .9844 | 6 | 77.22 | — |
| 1 | 1.0000 | 6 | 77.22 | 77.22 |

LETTER SIZES

| Size | Dec. Equiv. | Overall Length | Price Each | |
|------|-------------|----------------|---------------------------|----------------------------|
| | | | Drill Blank List No. 950D | Reamer Blank List No. 950R |
| A | .2340 | 3-7/8 | 5.60 | 5.60 |
| B | .2380 | 4 | 5.60 | 5.60 |
| C | .2420 | 4 | 5.60 | 5.60 |
| D | .2460 | 4 | 5.60 | 5.60 |
| E | .2500 | 4 | 5.54 | 5.54 |
| F | .2570 | 4-1/8 | 6.24 | 6.24 |
| G | .2610 | 4-1/8 | 6.24 | 6.24 |
| H | .2660 | 4-1/8 | 6.24 | 6.24 |
| I | .2720 | 4-1/8 | 6.73 | 6.73 |

| Size | Dec. Equiv. | Overall Length | Price Each | |
|------|-------------|----------------|---------------------------|----------------------------|
| | | | Drill Blank List No. 950D | Reamer Blank List No. 950R |
| J | .2770 | 4-1/8 | 6.73 | 6.73 |
| K | .2810 | 4-1/4 | 6.95 | 6.95 |
| L | .2900 | 4-1/4 | 6.95 | 6.95 |
| M | .2950 | 4-3/8 | 7.75 | 7.75 |
| N | .3020 | 4-3/8 | 7.75 | 7.75 |
| O | .3160 | 4-1/2 | 7.67 | 7.67 |
| P | .3230 | 4-5/8 | 8.25 | 8.25 |
| Q | .3320 | 4-3/4 | 8.25 | 8.25 |
| R | .3390 | 4-3/4 | 9.35 | 9.35 |

| Size | Dec. Equiv. | Overall Length | Price Each | |
|------|-------------|----------------|---------------------------|----------------------------|
| | | | Drill Blank List No. 950D | Reamer Blank List No. 950R |
| S | .3480 | 4-7/8 | 10.65 | 10.65 |
| T | .3580 | 4-7/8 | 10.65 | 10.65 |
| U | .3680 | 5 | 11.30 | 11.30 |
| V | .3770 | 5 | 11.30 | 11.30 |
| W | .3860 | 5-1/8 | 12.25 | 12.25 |
| X | .3970 | 5-1/8 | 12.25 | 12.25 |
| Y | .4040 | 5-1/4 | 13.25 | 13.25 |
| Z | .4130 | 5-1/4 | 13.25 | 13.25 |

WIRE GAUGE SIZES

| Size | Dec. Equiv. | Overall Length | Price Each | |
|------|-------------|----------------|---------------------------|----------------------------|
| | | | Drill Blank List No. 950D | Reamer Blank List No. 950R |
| 1 | .2280 | 3-7/8 | 4.57 | 4.57 |
| 2 | .2210 | 3-7/8 | 4.57 | 4.57 |
| 3 | .2130 | 3-3/4 | 4.57 | 4.57 |
| 4 | .2090 | 3-3/4 | 4.57 | 4.57 |
| 5 | .2055 | 3-3/4 | 4.57 | 4.57 |
| 6 | .2040 | 3-3/4 | 4.39 | 4.39 |
| 7 | .2010 | 3-5/8 | 4.39 | 4.39 |
| 8 | .1990 | 3-5/8 | 4.39 | 4.39 |
| 9 | .1960 | 3-5/8 | 4.39 | 4.39 |
| 10 | .1935 | 3-5/8 | 4.39 | 4.39 |
| 11 | .1910 | 3-1/2 | 3.48 | 3.48 |
| 12 | .1890 | 3-1/2 | 3.48 | 3.48 |
| 13 | .1850 | 3-1/2 | 3.48 | 3.48 |
| 14 | .1820 | 3-3/8 | 3.48 | 3.48 |
| 15 | .1800 | 3-3/8 | 3.48 | 3.48 |
| 16 | .1770 | 3-3/8 | 3.09 | 3.09 |
| 17 | .1730 | 3-3/8 | 3.09 | 3.09 |
| 18 | .1695 | 3-1/4 | 3.09 | 3.09 |
| 19 | .1660 | 3-1/4 | 3.09 | 3.09 |
| 20 | .1610 | 3-1/4 | 3.09 | 3.09 |
| 21 | .1590 | 3-1/4 | 3.09 | 3.09 |
| 22 | .1570 | 3-1/8 | 3.09 | 3.09 |
| 23 | .1540 | 3-1/8 | 3.09 | 3.09 |
| 24 | .1520 | 3-1/8 | 3.09 | 3.09 |
| 25 | .1495 | 3 | 3.09 | 3.09 |
| 26 | .1470 | 3 | 2.75 | 2.75 |
| 27 | .1440 | 3 | 2.75 | 2.75 |

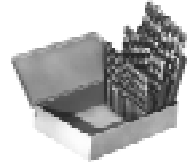
| Size | Dec. Equiv. | Overall Length | Price Each | |
|------|-------------|----------------|---------------------------|----------------------------|
| | | | Drill Blank List No. 950D | Reamer Blank List No. 950R |
| 28 | .1405 | 2-7/8 | 2.75 | 2.75 |
| 29 | .1360 | 2-7/8 | 2.75 | 2.75 |
| 30 | .1285 | 2-3/4 | 2.75 | 2.75 |
| 31 | .1200 | 2-3/4 | 2.75 | 2.75 |
| 32 | .1160 | 2-3/4 | 2.75 | 2.75 |
| 33 | .1130 | 2-5/8 | 2.75 | 2.75 |
| 34 | .1110 | 2-5/8 | 2.75 | 2.75 |
| 35 | .1100 | 2-5/8 | 2.75 | 2.75 |
| 36 | .1065 | 2-1/2 | 2.75 | 2.75 |
| 37 | .1040 | 2-1/2 | 2.75 | 2.75 |
| 38 | .1015 | 2-1/2 | 2.75 | 2.75 |
| 39 | .0995 | 2-3/8 | 2.75 | 2.75 |
| 40 | .0980 | 2-3/8 | 2.75 | 2.75 |
| 41 | .0960 | 2-3/8 | 2.68 | 2.68 |
| 42 | .0935 | 2-1/4 | 2.68 | 2.68 |
| 43 | .0890 | 2-1/4 | 2.68 | 2.68 |
| 44 | .0860 | 2-1/8 | 2.68 | 2.68 |
| 45 | .0820 | 2-1/8 | 2.68 | 2.68 |
| 46 | .0810 | 2-1/8 | 2.68 | 2.68 |
| 47 | .0785 | 2 | 2.68 | 2.68 |
| 48 | .0760 | 2 | 2.68 | 2.68 |
| 49 | .0730 | 2 | 2.68 | 2.68 |
| 50 | .0700 | 2 | 2.68 | 2.68 |
| 51 | .0670 | 2 | 2.60 | 2.60 |
| 52 | .0635 | 1-7/8 | 2.60 | 2.60 |
| 53 | .0595 | 1-7/8 | 2.60 | 2.60 |
| 54 | .0550 | 1-7/8 | 2.60 | 2.60 |

| Size | Dec. Equiv. | Overall Length | Price Each | |
|------|-------------|----------------|---------------------------|----------------------------|
| | | | Drill Blank List No. 950D | Reamer Blank List No. 950R |
| 55 | .0520 | 1-7/8 | 2.60 | 2.60 |
| 56 | .0465 | 1-3/4 | 2.60 | 2.60 |
| 57 | .0430 | 1-3/4 | 2.60 | 2.60 |
| 58 | .0420 | 1-5/8 | 2.60 | 2.60 |
| 59 | .0410 | 1-5/8 | 2.60 | 2.60 |
| 60 | .0400 | 1-5/8 | 2.60 | 2.60 |
| 61 | .0390 | 1-5/8 | 2.52 | 2.60 |
| 62 | .0380 | 1-1/2 | 2.52 | 2.60 |
| 63 | .0370 | 1-1/2 | 2.52 | 2.60 |
| 64 | .0360 | 1-1/2 | 2.52 | 2.60 |
| 65 | .0350 | 1-1/2 | 2.52 | 2.60 |
| 66 | .0330 | 1-3/8 | 2.52 | 2.60 |
| 67 | .0320 | 1-3/8 | 2.52 | 2.60 |
| 68 | .0310 | 1-3/8 | 2.52 | 2.60 |
| 69 | .0292 | 1-3/8 | 2.52 | 2.60 |
| 70 | .0280 | 1-1/4 | 2.52 | 2.60 |
| 71 | .0260 | 1-1/4 | 2.52 | 2.60 |
| 72 | .0250 | 1-1/8 | 2.52 | 2.60 |
| 73 | .0240 | 1-1/8 | 2.52 | 2.60 |
| 74 | .0225 | 1 | 2.52 | 2.60 |
| 75 | .0210 | 1 | 2.52 | 2.60 |
| 76 | .0200 | 7/8 | 2.52 | 2.60 |
| 77 | .0180 | 7/8 | 2.52 | 2.60 |
| 78 | .0160 | 7/8 | 2.52 | 2.60 |
| 79 | .0145 | 3/4 | 2.52 | 2.60 |
| 80 | .0135 | 3/4 | 2.52 | 2.60 |



METRIC JOBBER LENGTH DRILLS

- LIST NO. 301 — HIGH SPEED STEEL, GENERAL PURPOSE, 118° POINT
- LIST NO. 301C — SUPER COBALT, HEAVY DUTY, 135° SPLIT POINT



.15 mm — 7.40 mm — 12 Pc. Per Pkg.
 7.50 mm — 12.50 mm — 6 Pc. Per Pkg.
 12.75 mm — 20.00 mm — 1 Pc. Per Pkg.

Please order in package quantity.

SET NO. 307MB

19 Piece High Speed Metric Set
 1.00mm - 10.00 mm x .5 mm
 with Metal Index
SET PRICE—\$81.00

SET NO. 307MD

25 Piece High Speed Metric Set
 1.00mm - 13.00 mm x .5 mm
 with Metal Index
SET PRICE—\$159.00



| Size mm | Dec. Equiv. (Inches) | Flute Length | Overall Length | Price Each | | Size mm | Dec. Equiv. (Inches) | Flute Length | Overall Length | Price Each | | Size mm | Dec. Equiv. (Inches) | Flute Length | Overall Length | Price Each | |
|---------|----------------------|--------------|----------------|---------------|-------------------|---------|----------------------|--------------|----------------|---------------|------------------|---------|----------------------|--------------|----------------|---------------|------------------|
| | | | | H.S. List 301 | Cobalt List 301C* | | | | | H.S. List 301 | Cobalt List 301C | | | | | H.S. List 301 | Cobalt List 301C |
| .15 | .0059 | 3/64 | 3/4 | 8.98 | — | 2.70 | .1063 | 1-7/16 | 2-1/2 | 1.91 | 2.90 | 8.25 | .3248 | 3-5/16 | 4-5/8 | 6.71 | 12.25 |
| .16 | .0063 | 3/64 | 3/4 | 8.98 | — | 2.75 | .1083 | 1-1/2 | 2-5/8 | 2.00 | 2.95 | 8.30 | .3268 | 3-5/16 | 4-5/8 | 6.94 | 12.00 |
| .17 | .0067 | 1/16 | 3/4 | 8.12 | — | 2.80 | .1102 | 1-1/2 | 2-5/8 | 2.50 | 3.49 | 8.40 | .3307 | 3-7/16 | 4-3/4 | 7.35 | 13.14 |
| .18 | .0071 | 1/16 | 3/4 | 8.12 | — | 2.90 | .1142 | 1-5/8 | 2-3/4 | 1.93 | 3.49 | 8.50 | .3346 | 3-7/16 | 4-3/4 | 6.41 | 11.55 |
| .19 | .0075 | 1/16 | 3/4 | 6.45 | — | 3.00 | .1181 | 1-5/8 | 2-3/4 | 1.72 | 3.07 | 8.60 | .3386 | 3-7/16 | 4-3/4 | 7.35 | 13.14 |
| .20 | .0079 | 1/16 | 3/4 | 6.45 | — | 3.10 | .1220 | 1-5/8 | 2-3/4 | 1.93 | 3.48 | 8.70 | .3425 | 3-7/16 | 4-3/4 | 7.35 | 13.14 |
| .21 | .0083 | 3/32 | 3/4 | 6.45 | — | 3.20 | .1260 | 1-5/8 | 2-3/4 | 1.87 | 3.20 | 8.75 | .3445 | 3-1/2 | 4-7/8 | 8.41 | 15.39 |
| .22 | .0087 | 1/16 | 3/4 | 6.45 | — | 3.25 | .1280 | 1-5/8 | 2-3/4 | 1.96 | 3.25 | 8.80 | .3465 | 3-1/2 | 4-7/8 | 8.27 | 15.12 |
| .23 | .0091 | 3/32 | 3/4 | 6.45 | — | 3.30 | .1299 | 1-3/4 | 2-7/8 | 1.87 | 3.19 | 8.90 | .3504 | 3-1/2 | 4-7/8 | 8.27 | 15.12 |
| .24 | .0094 | 3/32 | 3/4 | 6.45 | — | 3.40 | .1339 | 1-3/4 | 2-7/8 | 2.00 | 3.40 | 9.00 | .3543 | 3-1/2 | 4-7/8 | 7.22 | 13.30 |
| .25 | .0098 | 5/64 | 3/4 | 5.10 | — | 3.50 | .1378 | 1-3/4 | 2-7/8 | 1.87 | 3.13 | 9.10 | .3583 | 3-1/2 | 4-7/8 | 8.27 | 15.12 |
| .26 | .0102 | 5/64 | 3/4 | 5.10 | — | 3.60 | .1417 | 1-7/8 | 3 | 2.14 | 3.98 | 9.20 | .3622 | 3-5/8 | 5 | 8.57 | 15.12 |
| .27 | .0106 | 5/64 | 3/4 | 4.61 | — | 3.70 | .1457 | 1-7/8 | 3 | 2.14 | 3.98 | 9.25 | .3642 | 3-5/8 | 5 | 8.71 | 15.39 |
| .28 | .0110 | 5/64 | 3/4 | 4.61 | — | 3.75 | .1476 | 1-7/8 | 3 | 2.66 | 4.07 | 9.30 | .3661 | 3-5/8 | 5 | 8.57 | 15.13 |
| .29 | .0114 | 5/64 | 3/4 | 4.61 | — | 3.80 | .1496 | 1-7/8 | 3 | 2.66 | 3.98 | 9.40 | .3701 | 3-5/8 | 5 | 8.57 | 15.13 |
| .30 | .0118 | 3/32 | 3/4 | 4.41 | — | 3.90 | .1535 | 2 | 3-1/8 | 3.12 | 3.98 | 9.50 | .3740 | 3-5/8 | 5 | 7.62 | 13.61 |
| .32 | .0126 | 3/32 | 3/4 | 3.89 | — | 4.00 | .1575 | 2-1/8 | 3-1/4 | 2.06 | 3.72 | 9.60 | .3780 | 3-3/4 | 5-1/8 | 9.67 | 17.16 |
| .34 | .0134 | 5/32 | 3/4 | 3.29 | — | 4.10 | .1614 | 2-1/8 | 3-1/4 | 2.30 | 4.20 | 9.70 | .3819 | 3-3/4 | 5-1/8 | 9.67 | 17.16 |
| .35 | .0138 | 1/8 | 3/4 | 3.29 | — | 4.20 | .1654 | 2-1/8 | 3-1/4 | 2.07 | 3.76 | 9.75 | .3839 | 3-3/4 | 5-1/8 | 9.85 | 17.47 |
| .36 | .0142 | 5/32 | 3/4 | 3.29 | — | 4.25 | .1673 | 2-1/8 | 3-1/4 | 2.75 | 4.28 | 9.80 | .3858 | 3-3/4 | 5-1/8 | 9.67 | 17.16 |
| .38 | .0150 | 3/16 | 3/4 | 2.80 | — | 4.30 | .1693 | 2-1/8 | 3-1/4 | 2.30 | 4.21 | 9.90 | .3898 | 3-3/4 | 5-1/8 | 9.67 | 17.16 |
| .40 | .0158 | 3/16 | 7/8 | 2.80 | — | 4.40 | .1732 | 2-3/16 | 3-3/8 | 2.57 | 4.72 | 10.00 | .3937 | 3-3/4 | 5-1/8 | 8.66 | 15.77 |
| .42 | .0165 | 3/16 | 7/8 | 2.80 | — | 4.50 | .1772 | 2-3/16 | 3-3/8 | 2.31 | 4.14 | 10.10 | .3976 | 3-3/4 | 5-1/4 | 10.09 | — |
| .44 | .0173 | 3/16 | 7/8 | 2.80 | — | 4.60 | .1811 | 2-3/16 | 3-3/8 | 2.57 | 4.72 | 10.20 | .4016 | 3-7/8 | 5-1/4 | 9.28 | 16.73 |
| .45 | .0177 | 3/16 | 7/8 | 2.80 | — | 4.70 | .1850 | 2-5/16 | 3-1/2 | 3.30 | 4.72 | 10.30 | .4055 | 3-7/8 | 5-1/4 | 11.19 | — |
| .46 | .0181 | 3/16 | 7/8 | 2.80 | — | 4.75 | .1870 | 2-5/16 | 3-1/2 | 3.30 | 4.81 | 10.40 | .4094 | 3-7/8 | 5-1/4 | 11.19 | — |
| .48 | .0189 | 3/16 | 7/8 | 2.80 | — | 4.80 | .1890 | 2-5/16 | 3-1/2 | 2.74 | 5.44 | 10.50 | .4134 | 3-15/16 | 5-3/8 | 9.64 | 17.43 |
| .50 | .0197 | 3/16 | 7/8 | 2.80 | — | 4.90 | .1929 | 2-7/16 | 3-5/8 | 2.84 | 5.68 | 10.70 | .4213 | 3-15/16 | 5-3/8 | 11.69 | — |
| .55 | .0217 | 1/4 | 1 | 2.80 | — | 5.00 | .1969 | 2-7/16 | 3-5/8 | 2.56 | 4.99 | 10.80 | .4252 | 4-1/16 | 5-1/2 | 11.69 | 20.63 |
| .60 | .0236 | 5/16 | 1-1/8 | 2.80 | — | 5.10 | .2008 | 2-7/16 | 3-5/8 | 2.85 | 5.69 | 10.90 | .4291 | 4-1/16 | 5-1/2 | 11.69 | — |
| .65 | .0256 | 3/8 | 1-1/4 | 2.80 | — | 5.20 | .2047 | 2-1/2 | 3-3/4 | 3.17 | 6.19 | 11.00 | .4331 | 4-1/16 | 5-1/2 | 10.00 | 17.83 |
| .70 | .0276 | 3/8 | 1-1/4 | 2.23 | — | 5.25 | .2067 | 2-1/2 | 3-3/4 | 3.30 | 6.32 | 11.10 | .4370 | 4-1/16 | 5-1/2 | 13.00 | — |
| .75 | .0295 | 1/2 | 1-3/8 | 2.00 | — | 5.30 | .2087 | 2-1/2 | 3-3/4 | 3.17 | 6.20 | 11.20 | .4409 | 4-3/16 | 5-5/8 | 13.09 | 24.76 |
| .80 | .0315 | 1/2 | 1-3/8 | 1.83 | — | 5.40 | .2126 | 2-1/2 | 3-3/4 | 3.17 | 6.20 | 11.25 | .4429 | 4-3/16 | 5-5/8 | 13.50 | — |
| .85 | .0335 | 5/8 | 1-1/2 | 1.83 | — | 5.50 | .2165 | 2-1/2 | 3-3/4 | 2.84 | 5.45 | 11.30 | .4449 | 4-3/16 | 5-5/8 | 13.00 | — |
| .90 | .0355 | 5/8 | 1-1/2 | 1.83 | — | 5.60 | .2205 | 2-5/8 | 3-7/8 | 3.42 | 6.60 | 11.40 | .4488 | 4-3/16 | 5-5/8 | 13.00 | — |
| .95 | .0374 | 5/8 | 1-1/2 | 1.83 | — | 5.70 | .2244 | 2-5/8 | 3-7/8 | 3.42 | 6.60 | 11.50 | .4528 | 4-3/16 | 5-5/8 | 11.20 | 21.39 |
| 1.00 | .0394 | 11/16 | 1-5/8 | 1.55 | 2.66 | 5.75 | .2264 | 2-5/8 | 3-7/8 | 3.60 | 6.72 | 11.60 | .4567 | 4-3/16 | 5-5/8 | 13.90 | — |
| 1.05 | .0413 | 11/16 | 1-5/8 | 1.87 | 2.95 | 5.80 | .2283 | 2-5/8 | 3-7/8 | 3.42 | 6.60 | 11.70 | .4606 | 4-3/16 | 5-5/8 | 13.90 | — |
| 1.10 | .0433 | 3/4 | 1-3/4 | 1.69 | 2.90 | 5.90 | .2323 | 2-5/8 | 3-7/8 | 4.15 | 6.60 | 11.80 | .4646 | 4-3/16 | 5-5/8 | 13.90 | — |
| 1.15 | .0453 | 3/4 | 1-3/4 | 1.77 | 2.95 | 6.00 | .2362 | 2-3/4 | 4 | 3.28 | 6.22 | 11.90 | .4685 | 4-3/16 | 5-5/8 | 14.50 | — |
| 1.20 | .0472 | 7/8 | 1-7/8 | 1.81 | 2.80 | 6.10 | .2402 | 2-3/4 | 4 | 3.67 | 7.05 | 12.00 | .4724 | 4-3/8 | 5-7/8 | 12.48 | 22.45 |
| 1.25 | .0492 | 7/8 | 1-7/8 | 1.82 | 2.73 | 6.20 | .2441 | 2-3/4 | 4 | 3.36 | 6.47 | 12.10 | .4764 | 4-3/8 | 5-7/8 | 14.50 | — |
| 1.30 | .0512 | 7/8 | 1-7/8 | 1.81 | 2.80 | 6.25 | .2461 | 2-3/4 | 4 | 4.50 | 7.16 | 12.20 | .4803 | 4-3/8 | 5-7/8 | 14.56 | 25.99 |
| 1.35 | .0531 | 7/8 | 1-7/8 | 1.88 | 2.84 | 6.30 | .2480 | 2-3/4 | 4 | 3.36 | 6.47 | 12.25 | .4823 | 4-3/8 | 5-7/8 | 14.80 | — |
| 1.40 | .0551 | 7/8 | 1-7/8 | 1.81 | 2.80 | 6.40 | .2520 | 2-7/8 | 4-1/8 | 4.00 | 7.31 | 12.30 | .4843 | 4-3/8 | 5-7/8 | 14.80 | — |
| 1.45 | .0571 | 7/8 | 1-7/8 | 1.88 | 2.84 | 6.50 | .2559 | 2-7/8 | 4-1/8 | 3.92 | 7.01 | 12.40 | .4882 | 4-3/8 | 5-7/8 | 14.80 | — |
| 1.50 | .0591 | 7/8 | 1-7/8 | 1.65 | 2.56 | 6.60 | .2598 | 2-7/8 | 4-1/8 | 4.38 | 7.98 | 12.50 | .4921 | 4-1/2 | 6 | 12.69 | 22.88 |
| 1.55 | .0610 | 7/8 | 1-7/8 | 1.88 | 2.84 | 6.70 | .2638 | 2-7/8 | 4-1/8 | 4.00 | 7.30 | 12.60 | .4961 | 4-1/2 | 6 | 25.90 | — |
| 1.60 | .0630 | 7/8 | 1-7/8 | 1.81 | 2.80 | 6.75 | .2657 | 2-7/8 | 4-1/8 | 4.72 | 8.54 | 12.70 | .5000 | 4-1/2 | 6 | 25.90 | — |
| 1.65 | .0650 | 1 | 2 | 1.88 | 2.84 | 6.80 | .2677 | 2-7/8 | 4-1/8 | 4.15 | 7.67 | 12.75 | .5020 | 4-1/2 | 6 | 22.00 | — |
| 1.70 | .0669 | 1 | 2 | 1.81 | 2.80 | 6.90 | .2717 | 2-7/8 | 4-1/8 | 5.40 | 8.36 | 12.80 | .5039 | 4-1/2 | 6 | 24.80 | — |
| 1.75 | .0689 | 1 | 2 | 1.88 | 2.84 | 7.00 | .2756 | 2-7/8 | 4-1/8 | 4.05 | 7.37 | 12.90 | .5079 | 4-1/2 | 6 | 25.90 | — |
| 1.80 | .0709 | 1 | 2 | 1.81 | 2.80 | 7.10 | .2795 | 2-15/16 | 4-1/4 | 5.40 | 8.37 | 13.00 | .5118 | 4-1/2 | 6 | 22.19 | 29.94 |
| 1.85 | .0728 | 1 | 2 | 2.31 | 2.84 | 7.20 | .2835 | 2-15/16 | 4-1/4 | 4.79 | 9.34 | 13.50 | .5315 | 4-13/16 | 6-5/8 | 28.21 | — |
| 1.90 | .0748 | 1 | 2 | 1.81 | 2.80 | 7.25 | .2854 | 2-15/16 | 4-1/4 | 5.47 | 10.36 | 13.80 | .5433 | 4-13/16 | 6-5/8 | 28.21 | — |
| 1.95 | .0768 | 1 | 2 | 1.88 | 2.84 | 7.30 | .2874 | 2-15/16 | 4-1/4 | 5.22 | 10.19 | 14.00 | .5512 | 4-13/16 | 6-5/8 | 26.38 | — |
| 2.00 | .0787 | 1 | 2-1/8 | 1.62 | 2.50 | 7.40 | .2913 | 3-1/16 | 4-3/8 | 5.22 | 10.19 | 14.50 | .5709 | 4-13/16 | 6-5/8 | 29.10 | — |
| 2.05 | .0807 | 1-1/8 | 2-1/8 | 2.50 | 2.84 | 7.50 | .2953 | 3-1/16 | 4-3/8 | 4.79 | 9.17 | 15.00 | .5906 | 5-3/16 | 7-1/8 | 29.08 | — |
| 2.10 | .0827 | 1-1/8 | 2-1/8 | 1.81 | 2.80 | 7.60 | .2992 | 3-1/16 | 4-3/8 | 5.83 | 10.85 | 15.25 | .6004 | 5-3/16 | 7-1/8 | 36.70 | — |
| 2.15 | .0846 | 1-1/8 | 2-1/8 | 1.88 | 2.84 | 7.70 | .3031 | 3-3/16 | 4-1/2 | 6.05 | 10.85 | 15.50 | .6102 | 5-3/16 | 7-1/8 | 39.20 | — |
| 2.20 | .0866 | 1-1/4 | 2-1/4 | 1.81 | 2.80 | 7.75 | .3051 | 3-3/16 | 4-1/2 | 6.10 | 11.05 | 16.00 | .6299 | 5-3/16 | 7-1/8 | 39.20 | — |
| 2.25 | .0886 | 1-1/4 | 2-1/4 | 1.88 | 2.84 | 7.80 | .3071 | 3-3/16 | 4-1/2 | 5.99 | 10.85 | 16.50 | .6496 | 5-3/16 | 7-1/8 | 39.20 | — |
| 2.30 | .0906 | 1-1/4 | 2-1/4 | 1.81 | 2.80 | 7.85 | .3091 | 3-3/16 | 4-1/2 | 5.99 | — | 17.00 | .6693 | 5-5/8 | 7-5/8 | 39.40 | — |
| 2.35 | .0925 | 1-1/4 | 2-1/4 | 1.88 | 2.84 | 7.90 | .3110 | 3-3/16 | 4-1/2 | 5.99 | 10.85 | 17.50 | .6890 | 5-5/8 | 7-5/8 | 39.40 | — |
| 2.40 | .0945 | 1-3/8 | 2-3/8 | 1.90 | 2.90 | 8.00 | .3150 | 3-3/16 | 4-1/2 | 5.75 | 10.58 | 18.00 | .7087 | 5-5/8 | 7-5/8 | 44.10 | — |
| 2.45 | .0965 | 1-3/8 | 2-3/8 | 2.50 | 2.95 | 8.10 | .3189 | 3-5/16 | 4-5/8 | 6.58 | 12.00 | 19.00 | .7480 | 5-5/8 | 7-5/8 | 48.25 | — |
| 2.50 | .0984 | | | | | | | | | | | | | | | | |

METRIC HEAVY DUTY JOBBER LENGTH DRILLS



● LIST NO. 301SB — 135° SPLIT POINT

| Size | Dec. Equiv. Inches | Flute Length | Overall Length | Price Each | |
|------|--------------------|--------------|----------------|------------|-------|
| | | | | List No. | Price |
| 1.00 | .0394 | 15/32 | 1-11/32 | 1.75 | |
| 1.05 | .0413 | 15/32 | 1-11/32 | 1.78 | |
| 1.10 | .0433 | 9/16 | 1-7/16 | 1.78 | |
| 1.15 | .0453 | 9/16 | 1-7/16 | 1.78 | |
| 1.20 | .0472 | 5/8 | 1-1/2 | 1.78 | |
| 1.25 | .0492 | 5/8 | 1-1/2 | 1.78 | |
| 1.30 | .0512 | 5/8 | 1-1/2 | 1.88 | |
| 1.35 | .0531 | 23/32 | 1-9/16 | 1.88 | |
| 1.40 | .0551 | 23/32 | 1-9/16 | 1.88 | |
| 1.45 | .0571 | 23/32 | 1-9/16 | 1.88 | |
| 1.50 | .0591 | 23/32 | 1-9/16 | 1.88 | |
| 1.55 | .0610 | 25/32 | 1-11/16 | 1.88 | |
| 1.60 | .0630 | 25/32 | 1-11/16 | 1.88 | |
| 1.65 | .0650 | 25/32 | 1-11/16 | 1.88 | |
| 1.70 | .0669 | 25/32 | 1-11/16 | 1.88 | |
| 1.75 | .0689 | 7/8 | 1-13/16 | 1.98 | |
| 1.80 | .0709 | 7/8 | 1-13/16 | 1.98 | |
| 1.85 | .0728 | 7/8 | 1-13/16 | 1.98 | |
| 1.90 | .0748 | 7/8 | 1-13/16 | 1.98 | |
| 1.95 | .0768 | 15/16 | 1-15/16 | 1.98 | |
| 2.00 | .0787 | 15/16 | 1-15/16 | 1.98 | |
| 2.05 | .0807 | 15/16 | 1-15/16 | 1.98 | |
| 2.10 | .0827 | 15/16 | 1-15/16 | 1.98 | |
| 2.15 | .0846 | 1-1/16 | 2-3/32 | 1.98 | |
| 2.25 | .0886 | 1-1/16 | 2-3/32 | 1.98 | |
| 2.30 | .0906 | 1-1/16 | 2-3/32 | 1.98 | |
| 2.35 | .0925 | 1-1/16 | 2-3/32 | 1.98 | |
| 2.40 | .0945 | 1-3/16 | 2-1/4 | 2.10 | |
| 2.45 | .0965 | 1-3/16 | 2-1/4 | 2.10 | |
| 2.50 | .0984 | 1-3/16 | 2-1/4 | 2.10 | |
| 2.70 | .1063 | 1-5/16 | 2-13/32 | 2.10 | |
| 2.90 | .1142 | 1-5/16 | 2-13/32 | 2.10 | |
| 3.00 | .1181 | 1-5/16 | 2-13/32 | 2.10 | |
| 3.10 | .1220 | 1-7/16 | 2-9/16 | 2.10 | |
| 3.20 | .1260 | 1-7/16 | 2-9/16 | 2.20 | |

| Size | Dec. Equiv. Inches | Flute Length | Overall Length | Price Each | |
|------|--------------------|--------------|----------------|------------|-------|
| | | | | List No. | Price |
| 3.30 | .1299 | 1-7/16 | 2-9/16 | 2.20 | |
| 3.40 | .1339 | 1-17/32 | 2-3/4 | 2.20 | |
| 3.50 | .1378 | 1-17/32 | 2-3/4 | 2.20 | |
| 3.60 | .1417 | 1-17/32 | 2-3/4 | 2.25 | |
| 3.70 | .1457 | 1-17/32 | 2-3/4 | 2.25 | |
| 3.80 | .1496 | 1-11/16 | 2-15/16 | 2.30 | |
| 3.90 | .1535 | 1-11/16 | 2-15/16 | 2.30 | |
| 4.00 | .1575 | 1-11/16 | 2-15/16 | 2.49 | |
| 4.10 | .1614 | 1-11/16 | 2-15/16 | 2.49 | |
| 4.20 | .1654 | 1-11/16 | 2-15/16 | 2.49 | |
| 4.30 | .1693 | 1-27/32 | 3-5/32 | 2.55 | |
| 4.40 | .1732 | 1-27/32 | 3-5/32 | 2.78 | |
| 4.50 | .1772 | 1-27/32 | 3-5/32 | 2.85 | |
| 4.60 | .1811 | 1-27/32 | 3-5/32 | 2.85 | |
| 4.70 | .1850 | 1-27/32 | 3-5/32 | 2.85 | |
| 4.90 | .1929 | 2-1/16 | 3-3/8 | 3.15 | |
| 5.00 | .1969 | 2-1/16 | 3-3/8 | 3.15 | |
| 5.10 | .2008 | 2-1/16 | 3-3/8 | 3.20 | |
| 5.20 | .2047 | 2-1/16 | 3-3/8 | 3.45 | |
| 5.50 | .2165 | 2-1/16 | 3-21/32 | 3.58 | |
| 5.60 | .2205 | 2-1/4 | 3-21/32 | 3.70 | |
| 5.80 | .2283 | 2-1/4 | 3-21/32 | 3.70 | |
| 5.90 | .2323 | 2-1/4 | 3-21/32 | 3.70 | |
| 6.00 | .2362 | 2-1/4 | 3-21/32 | 3.85 | |
| 6.20 | .2441 | 2-15/32 | 3-31/32 | 3.85 | |
| 6.30 | .2480 | 2-15/32 | 3-31/32 | 3.95 | |
| 6.40 | .2520 | 2-15/32 | 3-31/32 | 4.50 | |
| 6.50 | .2559 | 2-15/32 | 3-31/32 | 4.60 | |
| 6.60 | .2598 | 2-15/32 | 3-31/32 | 4.70 | |
| 6.80 | .2677 | 2-23/32 | 4-9/32 | 4.85 | |
| 6.90 | .2717 | 2-23/32 | 4-9/32 | 4.90 | |
| 7.00 | .2756 | 2-23/32 | 4-9/32 | 4.95 | |
| 7.10 | .2795 | 2-23/32 | 4-9/32 | 4.95 | |
| 7.20 | .2835 | 2-23/32 | 4-9/32 | 5.40 | |
| 7.30 | .2874 | 2-23/32 | 4-9/32 | 5.50 | |

| Size | Dec. Equiv. Inches | Flute Length | Overall Length | Price Each | |
|-------|--------------------|--------------|----------------|------------|-------|
| | | | | List No. | Price |
| 7.40 | .2913 | 2-23/32 | 4-9/32 | 5.55 | |
| 7.50 | .2953 | 2-23/32 | 4-9/32 | 5.60 | |
| 7.60 | .2992 | 2-15/16 | 4-19/32 | 6.25 | |
| 7.70 | .3031 | 2-15/16 | 4-19/32 | 6.40 | |
| 7.80 | .3071 | 2-15/16 | 4-19/32 | 6.50 | |
| 7.90 | .3110 | 2-15/16 | 4-19/32 | 6.60 | |
| 8.00 | .3150 | 2-15/16 | 4-19/32 | 6.80 | |
| 8.10 | .3189 | 2-15/16 | 4-19/32 | 6.95 | |
| 8.20 | .3228 | 2-15/16 | 4-19/32 | 6.95 | |
| 8.30 | .3268 | 2-15/16 | 4-19/32 | 7.00 | |
| 8.40 | .3307 | 2-15/16 | 4-19/32 | 7.80 | |
| 8.50 | .3346 | 2-15/16 | 4-19/32 | 7.80 | |
| 8.60 | .3386 | 3-3/16 | 4-29/32 | 7.90 | |
| 8.70 | .3425 | 3-3/16 | 4-29/32 | 7.90 | |
| 8.80 | .3465 | 3-3/16 | 4-29/32 | 8.75 | |
| 8.90 | .3504 | 3-3/16 | 4-29/32 | 8.85 | |
| 9.00 | .3543 | 3-3/16 | 4-29/32 | 8.85 | |
| 9.10 | .3583 | 3-3/16 | 4-29/32 | 8.95 | |
| 9.20 | .3622 | 3-3/16 | 4-29/32 | 9.25 | |
| 9.30 | .3661 | 3-3/16 | 4-29/32 | 9.40 | |
| 9.40 | .3701 | 3-3/16 | 4-29/32 | 9.40 | |
| 9.50 | .3740 | 3-3/16 | 4-29/32 | 9.40 | |
| 9.60 | .3780 | 3-7/16 | 5-1/4 | 10.50 | |
| 9.70 | .3819 | 3-7/16 | 5-1/4 | 10.60 | |
| 9.80 | .3858 | 3-7/16 | 5-1/4 | 10.70 | |
| 9.90 | .3898 | 3-7/16 | 5-1/4 | 10.80 | |
| 10.00 | .3937 | 3-7/16 | 5-1/4 | 10.80 | |
| 10.20 | .4016 | 3-7/16 | 5-1/4 | 10.90 | |
| 10.50 | .4134 | 3-7/16 | 5-1/4 | 10.95 | |
| 10.80 | .4252 | 3-11/16 | 5-19/32 | 12.70 | |
| 11.00 | .4331 | 3-11/16 | 5-19/32 | 12.70 | |
| 12.00 | .4724 | 3-31/32 | 5-15/16 | 13.95 | |
| 12.20 | .4803 | 3-31/32 | 5-15/16 | 15.90 | |
| 12.50 | .4921 | 3-31/32 | 5-15/16 | 16.20 | |
| 13.00 | .5118 | 3-31/32 | 5-15/16 | 24.50 | |

METRIC SCREW MACHINE LENGTH DRILLS



● LIST NO. 600M — HIGH SPEED STEEL, 135° SPLIT POINT

● LIST NO. 600MC — SUPER COBALT, HEAVY DUTY 135° SPLIT POINT

| Size | Dec. Equiv. Inches | Flute Length | Overall Length | Price Each | |
|------|--------------------|--------------|----------------|--------------------|-----------------------|
| | | | | List No. 600M H.S. | List No. 600MC Cobalt |
| 1.00 | .0394 | 1/2 | 1-3/8 | 2.25 | 4.05 |
| 1.20 | .0472 | 1/2 | 1-3/8 | 2.25 | — |
| 1.25 | .0492 | 1/2 | 1-3/8 | 2.25 | — |
| 1.40 | .0551 | 1/2 | 1-3/8 | 2.25 | 4.05 |
| 1.50 | .0591 | 1/2 | 1-3/8 | 2.25 | 4.05 |
| 1.70 | .0669 | 7/16 | 1-3/8 | 2.25 | 4.05 |
| 1.75 | .0589 | 7/16 | 1-7/16 | 2.25 | 4.05 |
| 1.95 | .0768 | 15/32 | 1-1/2 | 2.25 | — |
| 2.00 | .0787 | 15/32 | 1-1/2 | 2.25 | 4.05 |
| 2.05 | .0807 | 15/32 | 1-1/2 | 2.25 | 4.05 |
| 2.10 | .0827 | 15/32 | 1-1/2 | 2.25 | — |
| 2.15 | .0846 | 1/2 | 1-9/16 | 2.30 | — |
| 2.50 | .0984 | 1/2 | 1-9/16 | 2.30 | 4.14 |
| 2.60 | .1024 | 1/2 | 1-9/16 | 2.30 | — |
| 2.70 | .1063 | 5/8 | 1-13/16 | 2.35 | 4.23 |
| 2.80 | .1102 | 5/8 | 1-13/16 | 2.35 | 4.23 |
| 2.90 | .1142 | 5/8 | 1-13/16 | 2.35 | — |
| 3.00 | .1181 | 5/8 | 1-13/16 | 2.35 | 4.23 |
| 3.20 | .1260 | 23/32 | 1-13/16 | 2.35 | 4.23 |
| 3.25 | .1280 | 23/32 | 1-15/16 | 2.35 | — |
| 3.30 | .1299 | 23/32 | 1-15/16 | 2.35 | — |
| 3.50 | .1378 | 25/32 | 2-1/16 | 2.35 | 4.23 |

| Size | Dec. Equiv. Inches | Flute Length | Overall Length | Price Each | |
|------|--------------------|--------------|----------------|--------------------|-----------------------|
| | | | | List No. 600M H.S. | List No. 600MC Cobalt |
| 4.00 | .1575 | 7/8 | 2-5/32 | 2.35 | 4.23 |
| 4.10 | .1614 | 7/8 | 2-5/32 | 2.70 | — |
| 4.20 | .1654 | 7/8 | 2-5/32 | 2.70 | 4.86 |
| 4.25 | .1673 | 15/16 | 2-9/32 | 2.70 | — |
| 4.30 | .1693 | 15/16 | 2-9/32 | 2.70 | 4.86 |
| 4.40 | .1732 | 15/16 | 2-9/32 | 2.75 | 4.95 |
| 4.50 | .1772 | 15/16 | 2-9/32 | 2.75 | 4.95 |
| 4.60 | .1811 | 15/16 | 2-9/32 | 2.95 | — |
| 4.70 | .1850 | 15/16 | 2-9/32 | 2.95 | — |
| 4.80 | .1890 | 1-1/32 | 2-7/16 | 3.00 | — |
| 5.00 | .1969 | 1-1/32 | 2-7/16 | 3.00 | 5.40 |
| 5.10 | .2008 | 1-1/32 | 2-7/16 | 3.05 | — |
| 5.30 | .2087 | 1-1/32 | 2-7/16 | 3.65 | — |
| 5.40 | .2126 | 1-3/32 | 2-19/32 | 3.65 | 6.57 |
| 5.80 | .2283 | 1-3/32 | 2-19/32 | 3.75 | 6.75 |
| 5.90 | .2323 | 1-3/32 | 2-19/32 | 3.75 | — |
| 6.00 | .2362 | 1-3/32 | 2-19/32 | 3.75 | 6.75 |
| 6.50 | .2559 | 1-7/32 | 2-3/4 | 3.90 | 7.02 |
| 6.75 | .2657 | 1-11/32 | 2-29/32 | 4.30 | — |
| 7.00 | .2756 | 1-11/32 | 2-29/32 | 4.30 | 7.74 |
| 7.10 | .2795 | 1-11/32 | 2-29/32 | 4.90 | 8.82 |
| 7.30 | .2874 | 1-11/32 | 2-29/32 | 5.40 | — |

| Size | Dec. Equiv. Inches | Flute Length | Overall Length | Price Each | |
|-------|--------------------|--------------|----------------|--------------------|-----------------------|
| | | | | List No. 600M H.S. | List No. 600MC Cobalt |
| 7.40 | .2913 | 1-11/32 | 2-29/32 | 5.40 | 9.72 |
| 7.50 | .2953 | 1-11/32 | 2-29/32 | 5.40 | 9.72 |
| 7.60 | .2992 | 1-15/32 | 3-1/8 | 6.00 | 10.80 |
| 7.90 | .3110 | 1-15/32 | 3-1/8 | 6.00 | 10.80 |
| 8.00 | .3150 | 1-15/32 | 3-1/8 | 6.00 | 10.80 |
| 8.20 | .3228 | 1-15/32 | 3-1/8 | 6.50 | 11.70 |
| 8.30 | .3268 | 1-15/32 | 3-1/8 | 6.50 | — |
| 8.40 | .3307 | 1-15/32 | 3-1/8 | 6.50 | 11.70 |
| 8.50 | .3346 | 1-15/32 | 3-1/8 | 6.50 | 11.70 |
| 8.80 | .3465 | 1-9/16 | 3-5/16 | 8.20 | 14.76 |
| 8.90 | .3504 | 1-9/16 | 3-5/16 | 9.50 | — |
| 9.00 | .3543 | 1-9/16 | 3-5/16 | 9.50 | 17.10 |
| 9.10 | .3583 | 1-9/16 | 3-5/16 | 9.50 | 17.10 |
| 9.60 | .3780 | 1-9/16 | 3-5/16 | 9.50 | — |
| 9.90 | .3898 | 1-11/16 | 3-1/2 | 9.60 | 17.28 |
| 10.00 | .3937 | 1-11/16 | 3-1/2 | 9.60 | 17.28 |
| 10.50 | .4134 | 1-11/16 | 3-1/2 | 10.44 | 18.79 |
| 11.50 | .4528 | 1-7/8 | 3-3/4 | 12.60 | 22.68 |
| 11.80 | .4646 | 1-7/8 | 3-3/4 | 13.50 | 24.30 |
| 12.20 | .4803 | 2-1/64 | 4-1/64 | 13.85 | 24.93 |
| 12.50 | .4921 | 2-1/64 | 4-1/64 | 13.85 | 24.93 |

MAINTENANCE JOBBER LENGTH DRILLS

SET NO. X307W

60 Piece HS Jobber Drill Set
No. 1 - 60 in Metal Case
SET PRICE — \$70.10

SET NO. X307V

20 Piece HS Drill Set
No. 61 - 80 in Metal Case
SET PRICE — \$26.84

- ▶ LIST NO. X300 — HIGH SPEED STEEL
- ▶ LIST NO. X300T — TITANIUM COATED

Please order in package quantity



These drills are used for general purpose applications at a lower cost.

SET NO. X307F
29 Piece HS Fractional Set
1/16 - 1/2 x 64ths in Metal Case
SET PRICE — \$91.19

SET NO. X307X
115 Piece HS Combination
Jobber Drill Set
1/16 - 1/2 by 64ths
A - Z
No. 1 - 60 in Metal Case
SET PRICE — \$254.41

FRACTIONAL SIZES

| Size | Flute Length | Overall Length | Price Each | |
|-------|--------------|----------------|-----------------|------------------|
| | | | High Speed X300 | TiN Coated X300T |
| 1/64 | 3/16 | 3/4 | 1.49 | — |
| 1/32 | 1/2 | 1-3/8 | .91 | 2.61 |
| 3/64 | 3/4 | 1-3/4 | .87 | 2.10 |
| 1/16 | 7/8 | 1-7/8 | .89 | 2.10 |
| 5/64 | 1 | 2 | .89 | 2.10 |
| 3/32 | 1-1/4 | 2-1/4 | .89 | 2.10 |
| 7/64 | 1-1/2 | 2-5/8 | .93 | 2.15 |
| 1/8 | 1-5/8 | 2-3/4 | .93 | 2.18 |
| 9/64 | 1-3/4 | 2-7/8 | 1.03 | 2.69 |
| 5/32 | 2 | 3-1/8 | 1.04 | 2.72 |
| 11/64 | 2-1/8 | 3-1/4 | 1.13 | 3.12 |
| 3/16 | 2-5/16 | 3-1/2 | 1.27 | 3.59 |
| 13/64 | 2-7/16 | 3-5/8 | 1.39 | 3.77 |
| 7/32 | 2-1/2 | 3-3/4 | 1.55 | 3.96 |
| 15/64 | 2-5/8 | 3-7/8 | 1.68 | 4.12 |

1/64 — 17/64 12 pc. per pkg.

| Size | Flute Length | Overall Length | Price Each | |
|-------|--------------|----------------|-----------------|------------------|
| | | | High Speed X300 | TiN Coated X300T |
| 1/4 | 2-3/4 | 4 | 1.70 | 4.16 |
| 17/64 | 2-7/8 | 4-1/8 | 2.14 | 6.02 |
| 9/32 | 2-15/16 | 4-1/4 | 2.21 | 6.09 |
| 19/64 | 3-1/16 | 4-3/8 | 2.55 | 6.53 |
| 5/16 | 3-3/16 | 4-1/2 | 2.83 | 6.87 |
| 21/64 | 3-5/16 | 4-5/8 | 3.14 | 8.94 |
| 11/32 | 3-7/16 | 4-3/4 | 3.50 | 9.38 |
| 23/64 | 3-1/2 | 4-7/8 | 3.94 | 9.91 |
| 3/8 | 3-5/8 | 5 | 4.03 | 10.08 |
| 25/64 | 3-3/4 | 5-1/8 | 4.61 | 11.87 |
| 13/32 | 3-7/8 | 5-1/4 | 4.74 | 12.06 |
| 27/64 | 3-15/16 | 5-3/8 | 5.26 | 12.67 |
| 7/16 | 4-1/16 | 5-1/2 | 5.47 | 12.90 |
| 29/64 | 4-3/16 | 5-5/8 | 6.11 | 14.02 |
| 15/32 | 4-5/16 | 5-3/4 | 6.49 | 14.47 |

9/32 — 1/2 6 pc. per pkg.

| Size | Flute Length | Overall Length | Price Each | |
|-------|--------------|----------------|-----------------|------------------|
| | | | High Speed X300 | TiN Coated X300T |
| 31/64 | 4-3/8 | 5-7/8 | 6.82 | 14.84 |
| 1/2 | 4-1/2 | 6 | 6.86 | 15.01 |
| 33/64 | 4-13/16 | 6-5/8 | 12.36 | — |
| 17/32 | 4-13/16 | 6-5/8 | 12.73 | — |
| 35/64 | 4-13/16 | 6-5/8 | 14.03 | — |
| 9/16 | 4-13/16 | 6-5/8 | 14.41 | — |
| 37/64 | 4-13/16 | 6-5/8 | 14.74 | — |
| 19/32 | 5-3/16 | 7-1/8 | 15.13 | — |
| 39/64 | 5-3/16 | 7-1/8 | 16.21 | — |
| 5/8 | 5-3/16 | 7-1/8 | 15.91 | — |
| 41/64 | 5-3/16 | 7-1/8 | 17.37 | — |
| 21/32 | 5-3/16 | 7-1/8 | 18.21 | — |
| 43/64 | 5-5/8 | 7-5/8 | 19.68 | — |
| 11/16 | 5-5/8 | 7-5/8 | 19.68 | — |

33/64 — 11/16 1 pc. per pkg.

▶ LIST NO. X300

WIRE GAUGE SIZES

| Size | Flute Length | Overall Length | Price Each |
|------|--------------|----------------|------------|
| 1 | 2-5/8 | 3-7/8 | 1.86 |
| 2 | 2-5/8 | 3-7/8 | 1.89 |
| 3 | 2-1/2 | 3-3/4 | 1.69 |
| 4 | 2-1/2 | 3-3/4 | 1.72 |
| 5 | 2-1/2 | 3-3/4 | 1.72 |
| 6 | 2-1/2 | 3-3/4 | 1.72 |
| 7 | 2-7/16 | 3-5/8 | 1.50 |
| 8 | 2-7/16 | 3-5/8 | 1.52 |
| 9 | 2-7/16 | 3-5/8 | 1.52 |
| 10 | 2-7/16 | 3-5/8 | 1.50 |
| 11 | 2-5/16 | 3-1/2 | 1.39 |
| 12 | 2-5/16 | 3-1/2 | 1.40 |
| 13 | 2-5/16 | 3-1/2 | 1.37 |
| 14 | 2-3/16 | 3-3/8 | 1.37 |
| 15 | 2-3/16 | 3-3/8 | 1.37 |
| 16 | 2-3/16 | 3-3/8 | 1.37 |
| 17 | 2-3/16 | 3-3/8 | 1.37 |
| 18 | 2-1/8 | 3-1/4 | 1.14 |
| 19 | 2-1/8 | 3-1/4 | 1.13 |
| 20 | 2-1/8 | 3-1/4 | 1.13 |
| 21 | 2-1/8 | 3-1/4 | 1.04 |
| 22 | 2 | 3-1/8 | 1.05 |
| 23 | 2 | 3-1/8 | 1.04 |
| 24 | 2 | 3-1/8 | 1.04 |
| 25 | 1-7/8 | 3 | .99 |
| 26 | 1-7/8 | 3 | 1.00 |
| 27 | 1-7/8 | 3 | 1.00 |

12 pc. per pkg.

| Size | Flute Length | Overall Length | Price Each |
|------|--------------|----------------|------------|
| 28 | 1-3/4 | 2-7/8 | .92 |
| 29 | 1-3/4 | 2-7/8 | .91 |
| 30 | 1-5/8 | 2-3/4 | .91 |
| 31 | 1-5/8 | 2-3/4 | .91 |
| 32 | 1-5/8 | 2-3/4 | .91 |
| 33 | 1-1/2 | 2-5/8 | .91 |
| 34 | 1-1/2 | 2-5/8 | .91 |
| 35 | 1-1/2 | 2-5/8 | .91 |
| 36 | 1-7/16 | 2-1/2 | .90 |
| 37 | 1-7/16 | 2-1/2 | .91 |
| 38 | 1-7/16 | 2-1/2 | .91 |
| 39 | 1-3/8 | 2-3/8 | .91 |
| 40 | 1-3/8 | 2-3/8 | .91 |
| 41 | 1-3/8 | 2-3/8 | .88 |
| 42 | 1-1/4 | 2-1/4 | .91 |
| 43 | 1-1/4 | 2-1/4 | .88 |
| 44 | 1-1/8 | 2-1/8 | .88 |
| 45 | 1-1/8 | 2-1/8 | .91 |
| 46 | 1-1/8 | 2-1/8 | .91 |
| 47 | 1 | 2 | .91 |
| 48 | 1 | 2 | .91 |
| 49 | 1 | 2 | .91 |
| 50 | 1 | 2 | .91 |
| 51 | 1 | 2 | .91 |
| 52 | 7/8 | 1-7/8 | .91 |
| 53 | 7/8 | 1-7/8 | .91 |
| 54 | 7/8 | 1-7/8 | .77 |

| Size | Flute Length | Overall Length | Price Each |
|------|--------------|----------------|------------|
| 55 | 7/8 | 1-7/8 | .91 |
| 56 | 3/4 | 1-3/4 | .91 |
| 57 | 3/4 | 1-3/4 | .91 |
| 58 | 11/16 | 1-5/8 | .93 |
| 59 | 11/16 | 1-5/8 | .93 |
| 60 | 11/16 | 1-5/8 | .93 |
| 61 | 11/16 | 1-5/8 | .99 |
| 62 | 5/8 | 1-1/2 | .99 |
| 63 | 5/8 | 1-1/2 | .99 |
| 64 | 5/8 | 1-1/2 | .99 |
| 65 | 5/8 | 1-1/2 | .99 |
| 66 | 1/2 | 1-3/8 | .99 |
| 67 | 1/2 | 1-3/8 | .99 |
| 68 | 1/2 | 1-3/8 | .99 |
| 69 | 1/2 | 1-3/8 | 1.08 |
| 70 | 3/8 | 1-1/4 | 1.08 |
| 71 | 3/8 | 1-1/4 | 1.35 |
| 72 | 5/16 | 1-1/8 | 1.35 |
| 73 | 5/16 | 1-1/8 | 1.35 |
| 74 | 1/4 | 1 | 1.35 |
| 75 | 1/4 | 1 | 1.35 |
| 76 | 3/16 | 7/8 | 1.35 |
| 77 | 3/16 | 7/8 | 1.35 |
| 78 | 3/16 | 7/8 | 1.35 |
| 79 | 1/8 | 3/4 | 1.61 |
| 80 | 1/8 | 3/4 | 1.61 |

▶ LIST NO. X300

LETTER SIZES

| Size | Flute Length | Overall Length | Price Each |
|------|--------------|----------------|------------|
| A | 2-5/8 | 3-7/8 | 2.13 |
| B | 2-3/4 | 4 | 2.13 |
| C | 2-3/4 | 4 | 2.13 |
| D | 2-3/4 | 4 | 2.13 |
| E | 2-3/4 | 4 | 1.70 |
| F | 2-7/8 | 4-1/8 | 2.26 |
| G | 2-7/8 | 4-1/8 | 2.55 |
| H | 2-7/8 | 4-1/8 | 2.55 |
| I | 2-7/8 | 4-1/8 | 2.55 |

A — H 12 pc. per pkg.

| Size | Flute Length | Overall Length | Price Each |
|------|--------------|----------------|------------|
| J | 2-7/8 | 4-1/8 | 2.74 |
| K | 2-15/16 | 4-1/4 | 3.02 |
| L | 2-15/16 | 4-1/4 | 3.02 |
| M | 3-1/16 | 4-3/8 | 3.19 |
| N | 3-1/16 | 4-3/8 | 3.19 |
| O | 3-3/16 | 4-1/2 | 3.23 |
| P | 3-5/16 | 4-5/8 | 3.64 |
| Q | 3-7/16 | 4-3/4 | 3.64 |
| R | 3-7/16 | 4-3/4 | 3.90 |

I — Z 6 pc. per pkg.

| Size | Flute Length | Overall Length | Price Each |
|------|--------------|----------------|------------|
| S | 3-1/2 | 4-7/8 | 4.13 |
| T | 3-1/2 | 4-7/8 | 4.70 |
| U | 3-5/8 | 5 | 4.70 |
| V | 3-5/8 | 5 | 4.83 |
| W | 3-3/4 | 5-1/8 | 4.99 |
| X | 3-3/4 | 5-1/8 | 6.05 |
| Y | 3-7/8 | 5-1/4 | 6.79 |
| Z | 3-7/8 | 5-1/4 | 7.23 |

MAINTENANCE JOBBER LENGTH DRILLS

A.I.A. (NAS907) — STANDARD — OXIDE FINISH

► LIST NO. X300SB, 135° SPLIT POINT HEAVY DUTY WEB CONSTRUCTION
Please order in package quantity.



These drills are made with a heavy web construction and may be used with heavier feeds in harder materials. Because of torsional strength and a 135° split point, this drill is popular in hand held drilling applications to reduce breakage and eliminate skidding or walking.

FRACTIONAL SIZES

| Size | Dec. Equiv. | Flute Length | Overall Length | Pkg. Qty. | Price Each | Size | Dec. Equiv. | Flute Length | Overall Length | Pkg. Qty. | Price Each | Size | Dec. Equiv. | Flute Length | Overall Length | Pkg. Qty. | Price Each |
|-------|-------------|--------------|----------------|-----------|------------|-------|-------------|--------------|----------------|-----------|------------|-------|-------------|--------------|----------------|-----------|------------|
| 3/64 | .0469 | 3/4 | 1-3/4 | 12 | 1.15 | 13/64 | .2031 | 2-7/16 | 3-5/8 | 12 | 1.96 | 23/64 | .3594 | 3-1/2 | 4-7/8 | 6 | 5.08 |
| 1/16 | .0625 | 7/8 | 1-7/8 | 12 | 1.25 | 7/32 | .2188 | 2-1/2 | 3-3/4 | 12 | 2.13 | 3/8 | .3750 | 3-5/8 | 5 | 6 | 5.36 |
| 5/64 | .0781 | 1 | 2 | 12 | 1.25 | 15/64 | .2344 | 2-5/8 | 3-7/8 | 12 | 2.29 | 25/64 | .3906 | 3-3/4 | 5-1/8 | 6 | 6.00 |
| 3/32 | .0938 | 1-1/4 | 2-1/4 | 12 | 1.25 | 1/4 | .2500 | 2-3/4 | 4 | 12 | 2.32 | 13/32 | .4062 | 3-7/8 | 5-1/4 | 6 | 6.25 |
| 7/64 | .1094 | 1-1/2 | 2-5/8 | 12 | 1.31 | 17/64 | .2656 | 2-7/8 | 4-1/8 | 12 | 2.96 | 27/64 | .4219 | 3-15/16 | 5-3/8 | 6 | 6.96 |
| 1/8 | .1250 | 1-5/8 | 2-3/4 | 12 | 1.32 | 9/32 | .2812 | 2-15/16 | 4-1/4 | 6 | 3.21 | 7/16 | .4375 | 4-1/16 | 5-1/2 | 6 | 7.21 |
| 9/64 | .1406 | 1-3/4 | 2-7/8 | 12 | 1.39 | 19/64 | .2969 | 3-1/16 | 4-3/8 | 6 | 3.54 | 29/64 | .4531 | 4-3/16 | 5-5/8 | 6 | 8.08 |
| 5/32 | .1562 | 2 | 3-1/8 | 12 | 1.42 | 5/16 | .3125 | 3-3/16 | 4-1/2 | 6 | 3.72 | 15/32 | .4688 | 4-5/16 | 5-3/4 | 6 | 8.54 |
| 11/64 | .1719 | 2-1/8 | 3-1/4 | 12 | 1.47 | 21/64 | .3281 | 3-5/16 | 4-5/8 | 6 | 4.10 | 31/64 | .4844 | 4-3/8 | 5-7/8 | 6 | 9.04 |
| 3/16 | .1875 | 2-5/16 | 3-1/2 | 12 | 1.73 | 11/32 | .3438 | 3-7/16 | 4-3/4 | 6 | 4.61 | 1/2 | .5000 | 4-1/2 | 6 | 6 | 9.15 |

MAINTENANCE **COBALT** JOBBER LENGTH DRILL

SET NO. X307CX
115 Piece Cobalt Combination
Jobber Drill Set
1/16 - 1/2 by 64ths, A - Z,
No. 1 - 60 in Metal Index
SET PRICE — \$449.00

SET NO. X307CW
60 Piece Cobalt Jobber Drill Set
No. 1 - 60 in Metal Index
SET PRICE — \$129.00

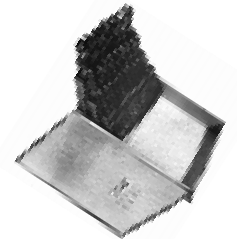
SET NO. X307CL
26 Piece Cobalt Jobber Drill Set
A - Z in Metal Index
SET PRICE — \$199.00

HEAVY DUTY — 135° SPLIT POINT

► LIST NO. X300C — SUPER COBALT
Please order in package quantity.



Cobalt drills display higher red hardness and are especially effective in drilling hard or abrasive materials.



SET NO. X307CF
29 Piece Cobalt Fractional
Jobber Drill Set
1/16 - 1/2 x 64ths in Metal Index
SET PRICE — \$159.00

FRACTIONAL SIZES

| Size | Dec. Equiv. | Flute Length | Overall Length | Pkg. Qty. | Price Each | Size | Dec. Equiv. | Flute Length | Overall Length | Pkg. Qty. | Price Each | Size | Dec. Equiv. | Flute Length | Overall Length | Pkg. Qty. | Price Each |
|-------|-------------|--------------|----------------|-----------|------------|-------|-------------|--------------|----------------|-----------|------------|-------|-------------|--------------|----------------|-----------|------------|
| 3/64 | .0469 | 3/4 | 1-3/4 | 12 | 1.82 | 13/64 | .2031 | 2-7/16 | 3-5/8 | 12 | 3.42 | 23/64 | .3594 | 3-1/2 | 4-7/8 | 6 | 9.44 |
| 1/16 | .0625 | 7/8 | 1-7/8 | 12 | 1.76 | 7/32 | .2188 | 2-1/2 | 3-3/4 | 12 | 3.72 | 3/8 | .3750 | 3-5/8 | 5 | 6 | 9.26 |
| 5/64 | .0781 | 1 | 2 | 12 | 1.73 | 15/64 | .2344 | 2-5/8 | 3-7/8 | 12 | 3.99 | 25/64 | .3906 | 3-3/4 | 5-1/8 | 6 | 10.37 |
| 3/32 | .0938 | 1-1/4 | 2-1/4 | 12 | 1.73 | 1/4 | .2500 | 2-3/4 | 4 | 12 | 4.15 | 13/32 | .4062 | 3-7/8 | 5-1/4 | 6 | 10.91 |
| 7/64 | .1094 | 1-1/2 | 2-5/8 | 12 | 1.82 | 17/64 | .2656 | 2-7/8 | 4-1/8 | 12 | 4.99 | 27/64 | .4219 | 3-15/16 | 5-3/8 | 6 | 11.99 |
| 1/8 | .1250 | 1-5/8 | 2-3/4 | 12 | 2.10 | 9/32 | .2812 | 2-15/16 | 4-1/4 | 6 | 5.19 | 7/16 | .4375 | 4-1/16 | 5-1/2 | 6 | 12.27 |
| 9/64 | .1406 | 1-3/4 | 2-7/8 | 12 | 2.16 | 19/64 | .2969 | 3-1/16 | 4-3/8 | 6 | 6.16 | 29/64 | .4531 | 4-3/16 | 5-5/8 | 6 | 14.89 |
| 5/32 | .1562 | 2 | 3-1/8 | 12 | 2.47 | 5/16 | .3125 | 3-3/16 | 4-1/2 | 6 | 6.64 | 15/32 | .4688 | 4-5/16 | 5-3/4 | 6 | 15.06 |
| 11/64 | .1719 | 2-1/8 | 3-1/4 | 12 | 2.63 | 21/64 | .3281 | 3-5/16 | 4-5/8 | 6 | 7.38 | 31/64 | .4844 | 4-3/8 | 5-7/8 | 6 | 16.41 |
| 3/16 | .1875 | 2-5/16 | 3-1/2 | 12 | 2.98 | 11/32 | .3438 | 3-7/16 | 4-3/4 | 6 | 7.93 | 1/2 | .5000 | 4-1/2 | 6 | 6 | 15.57 |

• SELF STARTING STEP DRILL



The self starting step drill has an exclusive single radial concave flute, that allows drilling of round holes in thin materials. For use in drilling copper, brass, aluminum and thin steels.

| Size Range | Step Increments | No. of Hole Sizes | Shank Size | H.S. Tool No. | H.S. Price Each | TiN Coated Tool No. | TiN Price Each |
|------------|-------------------|-------------------|------------|---------------|-----------------|---------------------|----------------|
| 1/8-1/2 | 32 ^{nds} | 13 | 1/4 | SSD1 | 16.50 | SSD1T | 22.00 |
| 3/16-1/2 | 16 th | 6 | 1/4 | SSD2 | 16.50 | SSD2T | 22.00 |
| 1/4-3/4 | 16 th | 9 | 3/8 | SSD3 | 29.90 | SSD3T | 39.75 |
| 3/16-7/8 | 16 th | 12 | 3/8 | SSD4 | 35.00 | SSD4T | 47.50 |
| 1/4-1-3/8 | 8 th | 10 | 1/2 | SSD5 | 62.75 | SSD5T | 83.75 |

SETS

SET NO. SSDS
3 PIECE H.S. SET
 Contains 1 Piece of Each:
 SSD1, SSD2, SSD3
 Supplied in wood block
SET PRICE - \$63.00

SET NO. SSDST
3 PIECE TiN COATED SET
 Contains 1 Piece of Each:
 SSD1T, SSD2T, SSD3T
 Supplied in wood block
SET PRICE - \$84.00

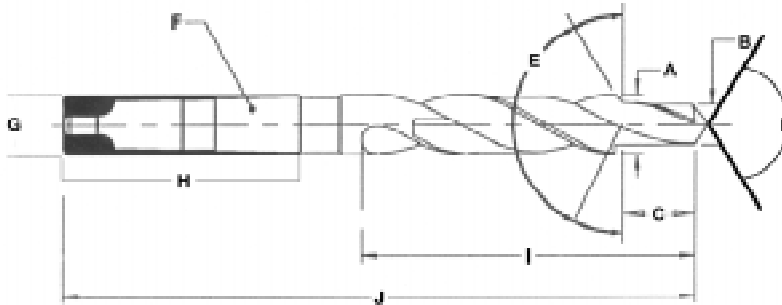
SPECIAL STEP DRILL QUOTATION FORM

REQUESTING A QUOTE FOR SPECIAL STEP DRILLS IS AS EASY AS 1, 2, 3

1. Make a copy of this form.
2. Fill in the specifications.
3. Fax or email to your Michigan Drill Distributor.

Additional order forms may be down loaded from our website under technical data special step drills.

When ordering Special Step drills, please specify the following:



- | | |
|--|---|
| A. _____ Major diameter | I. _____ Flute length |
| B. _____ Minor diameter (+000 -.002), unless otherwise specified | J. _____ Overall Length |
| C. _____ Step length (+/- .015), unless otherwise specified | Finish: Bright _____ Oxide _____ Coated _____ (specify) |
| D. _____ Point angle | Helix: Standard _____ Fast _____ Slow _____ or specify _____ |
| E. _____ Included angle | Tool Material: High Speed _____ Cobalt _____ Other _____ |
| F. _____ If taper shank advise Morse taper number | _____ Quantity required |
| G. _____ Shank diameter (if different than A), or standard tang | Right hand unless specified _____ Left Hand |
| H. _____ Length of shank if reduced | |

STANDARD STEP DRILLS

JOBBER LENGTH — TAPER LENGTH



Only **MICHIGAN DRILL** makes these tools as a standard. **OFF-THE-SHELF** for **IMMEDIATE DELIVERY!**
 An essential tool for every tool room. One tool does two jobs in a single pass. They can be sharpened repeatedly and are easily modified for any special length-of-step.

Special Step Drills available. Please inquire.

For Drilling and Counterboring **Cap Screw Clearance Holes**

- LIST NO. 371 — JOBBER LENGTH
- LIST NO. 471 — TAPER LENGTH



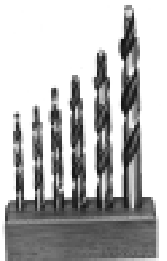
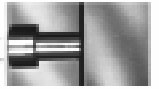
| Screw Size | Minor Diameter | Major Diameter | Step Length | Jobber Length List No. 371 | | | Taper Length List No. 471 | | |
|------------|----------------|----------------|-------------|----------------------------|----------------|------------|---------------------------|----------------|------------|
| | | | | Flute Length | Overall Length | Price Each | Flute Length | Overall Length | Price Each |
| No. 4 | .1360 | 7/32 | 3/8 | 2-1/2 | 3-3/4 | 11.65 | — | — | — |
| No. 5 | .141 | .228 | 3/8 | 2-5/8 | 3-7/8 | 12.25 | — | — | — |
| No. 6 | .150 | 1/4 | 1/2 | 2-3/4 | 4 | 12.97 | 3-3/4 | 6-1/8 | 18.15 |
| No. 8 | .178 | "L" | 1/2 | 2-15/16 | 4-1/4 | 14.85 | 4 | 6-3/8 | 26.65 |
| No. 10 | .204 | "Q" | 5/8 | 3-7/16 | 4-3/4 | 16.25 | 4-1/8 | 6-1/2 | 27.50 |
| 1/4 | 9/32 | 13/32 | 11/16 | 3-7/8 | 5-1/4 | 18.75 | 4-3/8 | 7 | 30.50 |
| 5/16 | 11/32 | 1/2 | 3/4 | 4-1/2 | 6 | 24.90 | 4-3/4 | 7-3/4 | 34.50 |
| 3/8 | 13/32 | 19/32 | 7/8 | 5-3/16 | 7-1/8 | 39.80 | 4-7/8 | 8-3/4 | 48.35 |
| 7/16 | 15/32 | 11/16 | 1 | 5-5/8 | 7-5/8 | 47.50 | — | — | — |
| 1/2 | 17/32 | 25/32 | 1 | 3-1/4 | 5-1/8* | 65.50 | 6 | 9-7/8 | 72.20 |
| 5/8 | 21/32 | 31/32 | 1 | 3-7/8 | 5-7/8* | 87.50 | 6-3/8 | 11 | 96.80 |

SETS

CAP SCREW SETS
 No. 6 thru 3/8 NC Screw Sizes
 (6 tools in wood block)

JOBBER LENGTH SET NO. 371S — \$127.52

TAPER LENGTH SET NO. 471S — \$185.65



*Shorter than Jobber Length.

For Drilling and Countersinking **82° Flat Head Machine Screw Clearance Holes**

- LIST NO. 372 — JOBBER LENGTH

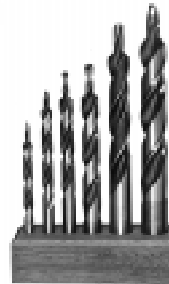


| Screw Size | Minor Diameter | Major Diameter | Step Length | Jobber Length List No. 372 | | |
|------------|----------------|----------------|-------------|----------------------------|----------------|------------|
| | | | | Flute Length | Overall Length | Price Each |
| No. 4 | .116 | 15/64 | 3/8 | 2-5/8 | 3-7/8 | 13.10 |
| No. 5 | .128 | "F" | 3/8 | 2-7/8 | 4-1/8 | 13.70 |
| No. 6 | .142 | 9/32 | 1/2 | 2-15/16 | 4-1/4 | 14.35 |
| No. 8 | .169 | "Q" | 1/2 | 3-7/16 | 4-3/4 | 16.95 |
| No. 10 | .196 | "W" | 5/8 | 3-3/4 | 5-1/8 | 18.50 |
| 1/4 | .257 | 1/2 | 11/16 | 4-1/2 | 6 | 22.90 |
| 5/16 | .320 | 5/8 | 3/4 | 5-3/16 | 7-1/8 | 35.90 |
| 3/8 | .383 | 3/4 | 7/8 | 3-1/8 | 5* | 49.75 |
| 7/16 | .446 | 13/16 | 1 | 3-3/8 | 5-1/4* | 64.80 |
| 1/2 | .510 | 7/8 | 1 | 3-1/2 | 5-1/2* | 71.50 |

SET

FLAT HEAD SCREW SET
 No. 6 thru 3/8 Screw Sizes
 (6 tools in wood block)

JOBBER LENGTH SET NO. 372S — \$158.35



*Shorter than Jobber Length.

For Drilling **45° Chamfered Holes To-Be-Tapped** (To produce approx. 70% thread)

- LIST NO. 370 — JOBBER LENGTH
- LIST NO. 470 — TAPER LENGTH



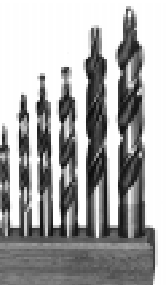
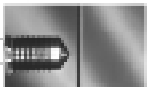
| Screw Size | Minor Diameter | Major Diameter | Step Length | Jobber Length List No. 370 | | | Taper Length List No. 470 | | |
|------------|----------------|----------------|-------------|----------------------------|----------------|------------|---------------------------|----------------|------------|
| | | | | Flute Length | Overall Length | Price Each | Flute Length | Overall Length | Price Each |
| 4-40 | .089 | .1285 | 3/8 | 1-5/8 | 2-3/4 | 11.50 | 3 | 5-3/8 | 17.25 |
| 5-40 | .101 | 9/64 | 1/2 | 1-3/4 | 2-7/8 | 12.10 | 3 | 5-3/8 | 18.10 |
| 6-32 | .109 | 5/32 | 1/2 | 2 | 3-1/8 | 12.25 | 3 | 5-3/8 | 18.50 |
| 8-32 | .136 | 3/16 | 1/2 | 2-5/16 | 3-1/2 | 12.56 | 3-3/8 | 5-3/4 | 18.65 |
| 8-36 | .136 | 3/16 | 1/2 | 2-5/16 | 3-1/2 | 12.75 | 3-3/8 | 5-3/4 | 19.00 |
| 10-24 | .152 | 1/4 | 5/8 | 2-3/4 | 4 | 13.35 | 3-3/4 | 6-1/8 | 20.95 |
| 10-32 | .161 | 1/4 | 5/8 | 2-3/4 | 4 | 13.35 | 3-3/4 | 6-1/8 | 20.95 |
| 12-24 | .179 | 9/32 | 11/16 | 2-15/16 | 4-1/4 | 15.50 | — | — | — |
| 1/4-20 | .204 | 21/64 | 13/16 | 3-5/16 | 4-5/8 | 16.45 | 4-1/8 | 6-1/2 | 23.73 |
| 1/4-28 | .218 | 21/64 | 13/16 | 3-5/16 | 4-5/8 | 16.75 | 4-1/8 | 6-1/2 | 24.25 |
| 5/16-18 | .261 | 13/32 | 15/16 | 3-7/8 | 5-1/4 | 18.75 | 4-3/8 | 7 | 26.60 |
| 5/16-24 | .272 | 13/32 | 15/16 | 3-7/8 | 5-1/4 | 19.00 | 4-3/8 | 7 | 27.25 |
| 3/8-16 | .316 | 31/64 | 1 | 4-3/8 | 5-7/8 | 24.80 | 4-3/4 | 7-3/4 | 38.50 |
| 3/8-24 | .339 | 31/64 | 1 | 4-3/8 | 5-7/8 | 25.25 | 4-3/4 | 7-3/4 | 38.50 |
| 7/16-14 | .375 | 17/32 | 1-1/16 | 4-13/16 | 6-5/8 | 43.23 | 4-3/4 | 8 | 47.30 |
| 7/16-20 | .390 | 17/32 | 1-1/16 | 4-13/16 | 6-5/8 | 43.23 | 4-3/4 | 8 | 47.30 |
| 1/2-13 | .437 | 5/8 | 1-1/16 | 5-3/16 | 7-1/8 | 49.90 | 4-7/8 | 8-3/4 | 57.50 |
| 1/2-20 | .452 | 5/8 | 1-1/16 | 5-3/16 | 7-1/8 | 50.50 | 4-7/8 | 8-3/4 | 57.50 |
| 5/8-11 | .531 | 3/4 | 1-1/16 | 5-5/8 | 7-5/8 | 62.90 | — | — | — |

SETS

TAP DRILL SETS
 No. 6 thru 3/8 NC Tap Sizes
 (6 tools in wood block)
 Contains 1 piece of each:
 6-32, 8-32, 10-24, 1/4-20, 5/16-18, 3/8-16

JOBBER LENGTH SET NO. 370S — \$98.16

TAPER LENGTH SET NO. 470S — \$146.93





STANDARD *Cobalt* STEP DRILLS

JOBBER LENGTH

An essential tool for every tool room. One tool does two jobs in a single pass. They can be sharpened repeatedly and are easily modified for any special length-of-step.

Special step drills also available. Please Inquire.

For Drilling and Counterboring **Cap Screw Clearance Holes**



LIST NO. 371C

| Screw Size | Minor Diameter | Major Diameter | Step Length | Flute Length | Overall Length | Price Each |
|------------|----------------|----------------|-------------|--------------|----------------|------------|
| No. 6 | .150 | 1/4 | 1/2 | 2-3/4 | 4 | 23.35 |
| No. 8 | .178 | "L" | 1/2 | 2-15/16 | 4-1/4 | 26.73 |
| No. 10 | .204 | "Q" | 5/8 | 3-7/16 | 4-3/4 | 29.25 |
| 1/4 | 9/32 | 13/32 | 11/16 | 3-7/8 | 5-1/4 | 33.75 |
| 5/16 | 11/32 | 1/2 | 3/4 | 4-1/2 | 6 | 44.82 |
| 3/8 | 13/32 | 19/32 | 7/8 | 5-3/16 | 7-1/8 | 71.64 |
| 7/16 | 15/32 | 11/16 | 1 | 5-5/8 | 7-5/8 | 85.50 |
| 1/2 | 17/32 | 25/32 | 1 | 3-1/4 | 5-1/8* | 117.90 |

*Shorter than Jobber Length.

SET

CAP SCREW SET

No. 6 thru 3/8 Screw Sizes
(6 tools in wood block)

SET NO. 371CS — \$230.00



For Drilling and Countersinking **82° Flat Head Machine Screw Clearance Holes**



LIST NO. 372C

| Screw Size | Minor Diameter | Major Diameter | Step Length | Flute Length | Overall Length | Price Each |
|------------|----------------|----------------|-------------|--------------|----------------|------------|
| No. 6 | .142 | 9/32 | 1/2 | 2-15/16 | 4-1/4 | 25.83 |
| No. 8 | .169 | "Q" | 1/2 | 3-7/16 | 4-3/4 | 30.51 |
| No. 10 | .196 | "W" | 5/8 | 3-3/4 | 5-1/8 | 33.30 |
| 1/4 | .257 | 1/2 | 11/16 | 4-1/2 | 6 | 41.22 |
| 5/16 | .320 | 5/8 | 3/4 | 5-3/16 | 7-1/8 | 64.62 |
| 3/8 | .383 | 3/4 | 7/8 | 3-1/8 | 5* | 89.55 |
| 7/16 | .446 | 13/16 | 1 | 3-3/8 | 5-1/4* | 116.64 |
| 1/2 | .510 | 7/8 | 1 | 3-1/2 | 5-1/2* | 128.70 |

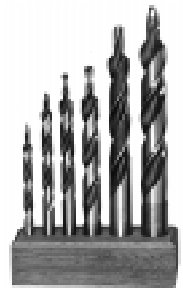
*Shorter than Jobber Length.

SET

FLAT HEAD SET

No. 6 thru 3/8 Screw Sizes
(6 tools in wood block)

SET NO. 372CS — \$285.00



For Drilling **45° Chamfered Holes To-Be-Tapped** (To produce approx. 70% thread)



LIST NO. 370C

| Screw Size | Minor Diameter | Major Diameter | Step Length | Flute Length | Overall Length | Price Each |
|------------|----------------|----------------|-------------|--------------|----------------|------------|
| 6-32 | .1096 | 5/32 | 1/2 | 2 | 3-1/8 | 22.05 |
| 8-32 | .1356 | 3/16 | 1/2 | 2-5/16 | 3-1/2 | 22.61 |
| 10-24 | .1521 | 1/4 | 5/8 | 2-3/4 | 4 | 24.03 |
| 10-32 | .1616 | 1/4 | 5/8 | 2-3/4 | 4 | 24.03 |
| 12-24 | .1781 | 9/32 | 11/16 | 2-15/16 | 4-1/4 | 27.90 |
| 1/4-20 | .2045 | 21/64 | 13/16 | 3-5/16 | 4-5/8 | 29.61 |
| 5/16-18 | .2619 | 13/32 | 15/16 | 3-7/8 | 5-1/4 | 33.75 |
| 3/8-16 | .3181 | 31/64 | 1 | 4-3/8 | 5-7/8 | 44.64 |

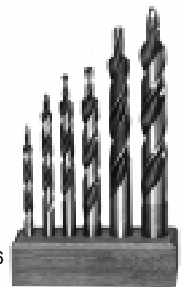
SET

TAP DRILL SET

No. 6 thru 3/8 NC Tap Sizes
Contains 1 piece of each:

6-32, 8-32, 10-24, 1/4-20, 5/16-18, 3/8-16

SET NO. 370CS — \$228.00



STANDARD METRIC STEP DRILLS

JOBBER LENGTH



An essential tool for every tool room. One tool does two jobs in a single pass. They can be sharpened repeatedly and are easily modified for any special length-of-step.

Special step drills also available. Please inquire.

For Drilling and Counterboring Cap Screw Clearance Holes

■ LIST NO. 371M



| Screw Size mm | Minor Diameter | Major Diameter | Step Length | Flute Length | Overall Length | Price Each |
|---------------|----------------|----------------|-------------|--------------|----------------|------------|
| 3.00 | .146 | 1/4 | 3/8 | 2-3/4 | 4 | 13.95 |
| 4.00 | .189 | 5/16 | 1/2 | 3-3/16 | 4-1/2 | 17.89 |
| 5.00 | .228 | 3/8 | 5/8 | 3-5/8 | 5 | 20.25 |
| 6.00 | .268 | 7/16 | 5/8 | 4-1/16 | 5-1/2 | 22.25 |
| 8.00 | .346 | 9/16 | 3/4 | 4-13/16 | 6-5/8 | 28.25 |
| 10.00 | .425 | 11/16 | 7/8 | 5-5/8 | 7-5/8 | 43.35 |
| 12.00 | .504 | 3/4 | 1 | 5-5/8 | 7-5/8 | 52.39 |
| 14.00 | .581 | 7/8 | 1 | 3-1/2 | 5-1/2* | 70.91 |
| 16.00 | .659 | 1 | 1 | 4 | 6* | 97.25 |

*Screw machine drill length.

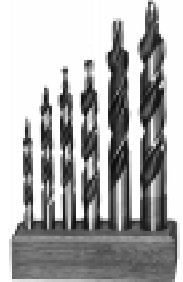
SET

CAP SCREW SET

3mm thru 10mm Screw Sizes
(6 tools in wood block)

JOBBER LENGTH

SET NO. 371MS — \$145.00



For Drilling 45° Chamfered Holes To-Be-Tapped (To produce approx. 70% thread)

■ LIST NO. 370M



| Screw Size mm | Minor Diameter | Major Diameter | Step Length | Flute Length | Overall Length | Price Each |
|---------------|----------------|----------------|-------------|--------------|----------------|------------|
| 3x0.50 | .098 | 5/32 | 1/2 | 2 | 3-1/8 | 12.95 |
| 4x0.70 | .130 | 13/64 | 1/2 | 2-7/16 | 3-5/8 | 13.95 |
| 5x0.80 | .165 | 1/4 | 5/8 | 2-3/4 | 4 | 14.29 |
| 6x1.00 | .197 | 19/64 | 11/16 | 3-1/16 | 4-3/8 | 16.49 |
| 8x1.25 | .266 | 13/32 | 15/16 | 3-7/8 | 5-1/4 | 19.95 |
| 10x1.50 | .335 | 1/2 | 1 | 4-1/2 | 6 | 26.51 |
| 12x1.75 | .406 | 19/32 | 1-1/16 | 5-3/16 | 7-1/8 | 52.51 |
| 14x2.00 | .472 | 11/16 | 1-1/16 | 5-5/8 | 7-5/8 | 59.95 |
| 16x2.00 | .551 | 3/4 | 1-1/16 | 5-5/8 | 7-5/8 | 66.95 |

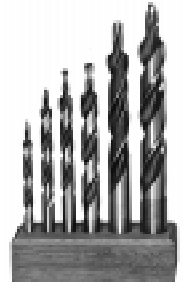
SET

TAP DRILL SET

3mm thru 10mm Tap Sizes
(6 tools in wood block)

JOBBER LENGTH

SET NO. 370MS — \$104.00



STANDARD SUBLAND STEP DRILLS

JOBBER LENGTH — 180° Step Angle, 118° point

■ LIST NO. 374



The Michigan Drill Subland series is an addition to our OFF-THE-SHELF standard step drill program. The Subland Step Drill will enable you to do multi-diameter drilling to specified hole tolerances in a one step operation. Coupled with the double land construction these tools will re-sharpen without extensive undercut rework, lowering your overall production costs.

For drilling and counterboring cap screw clearance holes.

| Screw Size | Minor Diameter | Major Diameter | Step Length | Flute Length | Overall Length | Price Each |
|------------|----------------|----------------|-------------|--------------|----------------|------------|
| No. 6 | .1405 | .2280 | 5/16 | 2-5/8 | 3-7/8 | 26.59 |
| No. 8 | .1750 | .2812 | 3/8 | 2-15/16 | 4-1/4 | 27.15 |
| No.10 | .2055 | .3437 | 1/2 | 3-7/16 | 4-3/4 | 29.12 |
| 1/4 | .2812 | .4062 | 1/2 | 3-7/8 | 5-1/4 | 32.62 |
| 5/16 | .3437 | .5000 | 5/8 | 4-1/16 | 5-1/2 | 38.66 |
| 3/8 | .4062 | .5937 | 3/4 | 5-3/16 | 7-1/8 | 50.16 |

Other subland drills available from stock.



HIGH SPEED STEEL

JOBBER LENGTH DRILLS

AUTOMOTIVE SERIES — TANGED

► LIST NO. 350 — OXIDE FINISH, 118° POINT

Please order in package quantity.

For use in split sleeve drill drivers.



We feature the only complete range of tanged Jobber Drills **OFF-THE-SHELF** for **IMMEDIATE DELIVERY!**

Through our modification shop, we can also tang any other style of straight shank drill at a moderate cost.

FRACTIONAL SIZES

| Size | Dec. Equiv. | Flute Length | Overall Length | Pkg. Qty. | Price Each |
|-------|-------------|--------------|----------------|-----------|------------|
| 1/8 | .1250 | 1-5/8 | 2-3/4 | 12 | 1.97 |
| 9/64 | .1406 | 1-3/4 | 2-7/8 | 12 | 2.10 |
| 5/32 | .1562 | 2 | 3-1/8 | 12 | 2.32 |
| 11/64 | .1719 | 2-1/8 | 3-1/4 | 12 | 2.67 |
| 3/16 | .1875 | 2-5/16 | 3-1/2 | 12 | 2.96 |
| 13/64 | .2031 | 2-7/16 | 3-5/8 | 12 | 3.34 |
| 7/32 | .2188 | 2-1/2 | 3-3/4 | 12 | 3.69 |
| 15/64 | .2344 | 2-5/8 | 3-7/8 | 12 | 4.10 |
| 1/4 | .2500 | 2-3/4 | 4 | 12 | 4.20 |
| 17/64 | .2656 | 2-7/8 | 4-1/8 | 12 | 5.11 |
| 9/32 | .2812 | 2-15/16 | 4-1/4 | 6 | 5.56 |
| 19/64 | .2969 | 3-1/16 | 4-3/8 | 6 | 6.08 |
| 5/16 | .3125 | 3-3/16 | 4-1/2 | 6 | 6.44 |

| Size | Dec. Equiv. | Flute Length | Overall Length | Pkg. Qty. | Price Each |
|-------|-------------|--------------|----------------|-----------|------------|
| 21/64 | .3281 | 3-5/16 | 4-5/8 | 6 | 7.30 |
| 11/32 | .3438 | 3-7/16 | 4-3/4 | 6 | 7.42 |
| 23/64 | .3594 | 3-1/2 | 4-7/8 | 6 | 8.64 |
| 3/8 | .3750 | 3-5/8 | 5 | 6 | 8.85 |
| 25/64 | .3906 | 3-3/4 | 5-1/8 | 6 | 9.97 |
| 13/32 | .4062 | 3-7/8 | 5-1/4 | 6 | 10.04 |
| 27/64 | .4219 | 3-15/16 | 5-3/8 | 6 | 11.71 |
| 7/16 | .4375 | 4-1/16 | 5-1/2 | 6 | 11.78 |
| 29/64 | .4531 | 4-3/16 | 5-5/8 | 6 | 14.09 |
| 15/32 | .4688 | 4-5/16 | 5-3/4 | 6 | 14.43 |
| 31/64 | .4844 | 4-3/8 | 5-7/8 | 6 | 15.67 |
| 1/2 | .5000 | 4-1/2 | 6 | 6 | 15.13 |
| 33/64 | .5156 | 4-13/16 | 6-5/8 | 1 | 27.01 |

| Size | Dec. Equiv. | Flute Length | Overall Length | Pkg. Qty. | Price Each |
|-------|-------------|--------------|----------------|-----------|------------|
| 17/32 | .5312 | 4-13/16 | 6-5/8 | 1 | 28.50 |
| 35/64 | .5469 | 4-13/16 | 6-5/8 | 1 | 31.10 |
| 9/16 | .5625 | 4-13/16 | 6-5/8 | 1 | 31.84 |
| 37/64 | .5781 | 4-13/16 | 6-5/8 | 1 | 33.42 |
| 19/32 | .5938 | 5-3/16 | 7-1/8 | 1 | 33.22 |
| 39/64 | .6094 | 5-3/16 | 7-1/8 | 1 | 36.34 |
| 5/8 | .6250 | 5-3/16 | 7-1/8 | 1 | 36.00 |
| 41/64 | .6406 | 5-3/16 | 7-1/8 | 1 | 38.35 |
| 21/32 | .6562 | 5-3/16 | 7-1/8 | 1 | 38.00 |
| 43/64 | .6719 | 5-5/8 | 7-5/8 | 1 | 44.22 |
| 11/16 | .6875 | 5-5/8 | 7-5/8 | 1 | 43.75 |

LETTER SIZES

| Size | Dec. Equiv. | Flute Length | Overall Length | Pkg. Qty. | Price Each |
|------|-------------|--------------|----------------|-----------|------------|
| A | .2340 | 2-5/8 | 3-7/8 | 12 | 4.75 |
| B | .2380 | 2-3/4 | 4 | 12 | 4.75 |
| C | .2420 | 2-3/4 | 4 | 12 | 4.75 |
| D | .2460 | 2-3/4 | 4 | 12 | 4.75 |
| E | .2500 | 2-3/4 | 4 | 12 | 4.20 |
| F | .2570 | 2-7/8 | 4-1/8 | 12 | 5.10 |
| G | .2610 | 2-7/8 | 4-1/8 | 12 | 5.80 |
| H | .2660 | 2-7/8 | 4-1/8 | 12 | 5.80 |
| I | .2720 | 2-7/8 | 4-1/8 | 6 | 5.80 |

| Size | Dec. Equiv. | Flute Length | Overall Length | Pkg. Qty. | Price Each |
|------|-------------|--------------|----------------|-----------|------------|
| J | .2770 | 2-7/8 | 4-1/8 | 6 | 6.00 |
| K | .2810 | 2-15/16 | 4-1/4 | 6 | 6.00 |
| L | .2900 | 2-15/16 | 4-1/4 | 6 | 7.30 |
| M | .2950 | 3-1/16 | 4-3/8 | 6 | 7.30 |
| N | .3020 | 3-1/16 | 4-3/8 | 6 | 7.30 |
| O | .3160 | 3-3/16 | 4-1/2 | 6 | 7.30 |
| P | .3230 | 3-5/16 | 4-5/8 | 6 | 7.75 |
| Q | .3320 | 3-7/16 | 4-3/4 | 6 | 7.75 |
| R | .3390 | 3-7/16 | 4-3/4 | 6 | 7.75 |

| Size | Dec. Equiv. | Flute Length | Overall Length | Pkg. Qty. | Price Each |
|------|-------------|--------------|----------------|-----------|------------|
| S | .3480 | 3-1/2 | 4-7/8 | 6 | 9.35 |
| T | .3580 | 3-1/2 | 4-7/8 | 6 | 10.20 |
| U | .3680 | 3-5/8 | 5 | 6 | 10.20 |
| V | .3770 | 3-5/8 | 5 | 6 | 10.95 |
| W | .3860 | 3-3/4 | 5-1/8 | 6 | 10.95 |
| X | .3970 | 3-3/4 | 5-1/8 | 6 | 13.25 |
| Y | .4040 | 3-7/8 | 5-1/4 | 6 | 13.25 |
| Z | .4130 | 3-7/8 | 5-1/4 | 6 | 14.50 |

WIRE GAUGE SIZES

| Size | Dec. Equiv. | Flute Length | Overall Length | Pkg. Qty. | Price Each |
|------|-------------|--------------|----------------|-----------|------------|
| 1 | .2280 | 2-5/8 | 3-7/8 | 12 | 4.25 |
| 2 | .2210 | 2-5/8 | 3-7/8 | 12 | 4.25 |
| 3 | .2130 | 2-1/2 | 3-3/4 | 12 | 3.80 |
| 4 | .2090 | 2-1/2 | 3-3/4 | 12 | 3.80 |
| 5 | .2055 | 2-1/2 | 3-3/4 | 12 | 3.80 |
| 6 | .2040 | 2-1/2 | 3-3/4 | 12 | 3.80 |
| 7 | .2010 | 2-7/16 | 3-5/8 | 12 | 3.40 |
| 8 | .1990 | 2-7/16 | 3-5/8 | 12 | 3.40 |
| 9 | .1960 | 2-7/16 | 3-5/8 | 12 | 3.40 |
| 10 | .1935 | 2-7/16 | 3-5/8 | 12 | 3.40 |
| 11 | .1910 | 2-5/16 | 3-1/2 | 12 | 3.20 |
| 12 | .1890 | 2-5/16 | 3-1/2 | 12 | 3.20 |

| Size | Dec. Equiv. | Flute Length | Overall Length | Pkg. Qty. | Price Each |
|------|-------------|--------------|----------------|-----------|------------|
| 13 | .1850 | 2-5/16 | 3-1/2 | 12 | 3.20 |
| 14 | .1820 | 2-3/16 | 3-3/8 | 12 | 3.20 |
| 15 | .1800 | 2-3/16 | 3-3/8 | 12 | 3.20 |
| 16 | .1770 | 2-3/16 | 3-3/8 | 12 | 3.20 |
| 17 | .1730 | 2-3/16 | 3-3/8 | 12 | 3.20 |
| 18 | .1695 | 2-1/8 | 3-1/4 | 12 | 2.77 |
| 19 | .1660 | 2-1/8 | 3-1/4 | 12 | 2.77 |
| 20 | .1610 | 2-1/8 | 3-1/4 | 12 | 2.77 |
| 21 | .1590 | 2-1/8 | 3-1/4 | 12 | 2.77 |
| 22 | .1570 | 2 | 3-1/8 | 12 | 2.77 |
| 23 | .1540 | 2 | 3-1/8 | 12 | 2.77 |
| 24 | .1520 | 2 | 3-1/8 | 12 | 2.53 |

| Size | Dec. Equiv. | Flute Length | Overall Length | Pkg. Qty. | Price Each |
|------|-------------|--------------|----------------|-----------|------------|
| 25 | .1495 | 1-7/8 | 3 | 12 | 2.53 |
| 26 | .1470 | 1-7/8 | 3 | 12 | 2.40 |
| 27 | .1440 | 1-7/8 | 3 | 12 | 2.40 |
| 28 | .1405 | 1-3/4 | 2-7/8 | 12 | 2.16 |
| 29 | .1360 | 1-3/4 | 2-7/8 | 12 | 2.10 |
| 30 | .1285 | 1-5/8 | 2-3/4 | 12 | 1.98 |
| 32 | .1160 | 1-5/8 | 2-3/4 | 12 | 1.98 |
| 37 | .1040 | 1-7/16 | 2-1/2 | 12 | 1.98 |
| 43 | .0890 | 1-1/4 | 2-1/4 | 12 | 1.98 |
| 46 | .0810 | 1-1/8 | 2-1/8 | 12 | 1.98 |
| 48 | .0760 | 1 | 2 | 12 | 1.98 |
| 50 | .0700 | 1 | 2 | 12 | 1.98 |

METRIC SIZES

| Size | Dec. Equiv. | Flute Length | Overall Length | Pkg. Qty. | Price Each |
|------|-------------|--------------|----------------|-----------|------------|
| 3.20 | .1260 | 1-5/8 | 2-3/4 | 12 | 2.00 |
| 3.30 | .1299 | 1-3/4 | 2-7/8 | 12 | 2.00 |
| 3.40 | .1339 | 1-3/4 | 2-7/8 | 12 | 2.00 |
| 3.50 | .1378 | 1-3/4 | 2-7/8 | 12 | 2.00 |
| 3.90 | .1535 | 2 | 3-1/8 | 12 | 2.50 |
| 5.70 | .2244 | 2-5/8 | 3-7/8 | 12 | 4.30 |
| 6.10 | .2402 | 2-3/4 | 4 | 12 | 4.70 |

| Size | Dec. Equiv. | Flute Length | Overall Length | Pkg. Qty. | Price Each |
|-------|-------------|--------------|----------------|-----------|------------|
| 6.40 | .2520 | 2-7/8 | 4-1/8 | 12 | 5.00 |
| 7.25 | .2854 | 2-15/16 | 4-1/4 | 12 | 6.65 |
| 7.40 | .2913 | 3-1/16 | 4-3/8 | 12 | 6.99 |
| 9.00 | .3543 | 3-1/2 | 4-7/8 | 6 | 11.20 |
| 11.00 | .4331 | 4-1/16 | 5-1/2 | 6 | 12.50 |
| 12.00 | .4724 | 4-3/8 | 5-7/8 | 6 | 16.50 |
| 19.00 | .7480 | 5-5/8 | 7-5/8 | 1 | 56.50 |

TAPER LENGTH DRILLS

AUTOMOTIVE LONG SERIES TANGED OXIDE FINISH



We feature the only complete range of tapered Taper Length Drills
OFF-THE-SHELF for IMMEDIATE DELIVERY!

● LIST NO. 450 — 118° POINT



These long series drills are used in applications where extended drill length is needed to produce deeper holes. The tapered shanks are for use in positive drive split sleeve drill drivers.

● LIST NO. 452 — HEAVY DUTY, LONG FLUTE
118° NOTCHED POINT

Sizes under 3/8 not notched.



These drills are designed with a heavy duty web and are recommended for drilling steel forgings, tough alloy steels and other difficult to machine materials. The shanks are tapered and may be used in A.S.A. split sleeve drill drivers. The flute length is longer for deeper holes and more regrinds. Drill diameters over 1/2" have reduced shanks.

| Size | Dec. Equiv. | Overall Length | List No. 450 | | List No. 452 | | | | Size | Dec. Equiv. | Overall Length | List No. 450 | | List No. 452 | | | |
|-------|-------------|----------------|--------------|------------|--------------|-----------|-------------|------------|---------|-------------|----------------|--------------|------------|--------------|-----------|-------------|------------|
| | | | Flute Length | Price Each | Flute Length | Shk. Dia. | Sleeve Size | Price Each | | | | Flute Length | Price Each | Flute Length | Shk. Dia. | Sleeve Size | Price Each |
| 1/8 | .1250 | 5-1/8 | 2-3/4 | 6.64 | 3-3/8 | 1/8 | 1 | 8.75 | O | .3160 | 6-1/2 | 4-1/8 | 19.50 | — | — | — | — |
| 30 | .1285 | 5-3/8 | 3 | 11.20 | — | — | — | — | P | .3230 | 6-1/2 | 4-1/8 | 19.50 | — | — | — | — |
| 29 | .1360 | 5-3/8 | 3 | 11.20 | — | — | — | — | 21/64 | .3281 | 6-1/2 | 4-1/8 | 14.42 | 5-1/4 | 21/64 | 2 | 15.20 |
| 28 | .1405 | 5-3/8 | 3 | 11.20 | — | — | — | — | Q | .3320 | 6-1/2 | 4-1/8 | 19.50 | — | — | — | — |
| 9/64 | .1406 | 5-3/8 | 3 | 8.23 | 3-5/8 | 9/64 | 1 | 9.90 | R | .3390 | 6-1/2 | 4-1/8 | 19.50 | — | — | — | — |
| 27 | .1440 | 5-3/8 | 3 | 11.20 | — | — | — | — | 11/32 | .3438 | 6-1/2 | 4-1/8 | 14.68 | 5-1/4 | 11/32 | 2 | 15.20 |
| 26 | .1470 | 5-3/8 | 3 | 11.20 | — | — | — | — | S | .3480 | 6-3/4 | 4-1/4 | 19.50 | — | — | — | — |
| 25 | .1495 | 5-3/8 | 3 | 11.20 | — | — | — | — | T | .3580 | 6-3/4 | 4-1/4 | 19.50 | — | — | — | — |
| 24 | .1520 | 5-3/8 | 3 | 11.20 | — | — | — | — | 23/64 | .3594 | 6-3/4 | 4-1/4 | 16.57 | 5-3/8 | 23/64 | 2 | 17.60 |
| 23 | .1540 | 5-3/8 | 3 | 11.20 | — | — | — | — | U | .3680 | 6-3/4 | 4-1/4 | 21.25 | — | — | — | — |
| 5/32 | .1562 | 5-3/8 | 3 | 8.23 | 3-3/4 | 5/32 | 1 | 9.65 | 3/8 | .3750 | 6-3/4 | 4-1/4 | 15.99 | 5-3/8 | 3/8 | 2 | 17.60 |
| 22 | .1570 | 5-3/4 | 3-3/8 | 11.20 | — | — | — | — | V | .3770 | 7 | 4-3/8 | 21.25 | — | — | — | — |
| 21 | .1590 | 5-3/4 | 3-3/8 | 11.20 | — | — | — | — | W | .3860 | 7 | 4-3/8 | 21.25 | — | — | — | — |
| 20 | .1610 | 5-3/4 | 3-3/8 | 11.20 | — | — | — | — | 25/64 | .3906 | 7 | 4-3/8 | 17.17 | 5-5/8 | 25/64 | 2 | 20.50 |
| 19 | .1660 | 5-3/4 | 3-3/8 | 11.20 | — | — | — | — | X | .3970 | 7 | 4-3/8 | 21.75 | — | — | — | — |
| 18 | .1695 | 5-3/4 | 3-3/8 | 11.20 | — | — | — | — | Y | .4040 | 7 | 4-3/8 | 21.75 | — | — | — | — |
| 11/64 | .1719 | 5-3/4 | 3-3/8 | 8.23 | 4-1/8 | 11/64 | 1 | 11.50 | 13/32 | .4062 | 7 | 4-3/8 | 16.55 | 5-5/8 | 13/32 | 2 | 19.30 |
| 17 | .1730 | 5-3/4 | 3-3/8 | 11.20 | — | — | — | — | Z | .4130 | 7-1/4 | 4-5/8 | 21.75 | — | — | — | — |
| 16 | .1770 | 5-3/4 | 3-3/8 | 11.20 | — | — | — | — | 27/64 | .4219 | 7-1/4 | 4-5/8 | 18.68 | 5-11/16 | 27/64 | 2 | 21.58 |
| 15 | .1800 | 5-3/4 | 3-3/8 | 11.20 | — | — | — | — | 10.8 m | .4252 | 7-1/4 | — | — | 5-11/16 | 27/64 | 2 | 21.58 |
| 14 | .1820 | 5-3/4 | 3-3/8 | 11.20 | — | — | — | — | 7/16 | .4375 | 7-1/4 | 4-5/8 | 18.43 | 5-11/16 | 7/16 | 2 | 21.58 |
| 13 | .1850 | 5-3/4 | 3-3/8 | 11.20 | — | — | — | — | 29/64 | .4531 | 7-1/2 | 4-3/4 | 21.18 | 5-3/4 | 29/64 | 2 | 23.97 |
| 3/16 | .1875 | 5-3/4 | 3-3/8 | 8.23 | 4-1/8 | 3/16 | 1 | 9.80 | 15/32 | .4688 | 7-1/2 | 4-3/4 | 21.45 | 5-3/4 | 15/32 | 2 | 26.11 |
| 12 | .1890 | 6 | 3-5/8 | 12.30 | — | — | — | — | 31/64 | .4844 | 7-3/4 | 4-3/4 | 22.26 | 5-3/4 | 31/64 | 2 | 28.17 |
| 11 | .1910 | 6 | 3-5/8 | 12.30 | — | — | — | — | 12.4 m | .4882 | 7-3/4 | — | — | 5-3/4 | 31/64 | 2 | 28.17 |
| 10 | .1935 | 6 | 3-5/8 | 12.30 | — | — | — | — | 1/2 | .5000 | 7-3/4 | 4-3/4 | 21.45 | 5-3/4 | 1/2 | 2 | 26.89 |
| 9 | .1960 | 6 | 3-5/8 | 12.30 | — | — | — | — | 33/64 | .5156 | 8 | 4-3/4 | 32.83 | 6 | 1/2 | 2 | 40.98 |
| 8 | .1990 | 6 | 3-5/8 | 12.30 | — | — | — | — | 17/32 | .5312 | 8 | 4-3/4 | 31.63 | 6 | 1/2 | 2 | 39.53 |
| 7 | .2010 | 6 | 3-5/8 | 12.30 | — | — | — | — | 13.8 m | .5433 | 8-1/4 | — | — | 6-1/4 | 1/2 | 2 | 39.53 |
| 13/64 | .2031 | 6 | 3-5/8 | 9.58 | 4-3/8 | 13/64 | 1 | 12.80 | 35/64 | .5469 | 8-1/4 | 4-7/8 | 34.64 | 6-1/4 | 1/2 | 2 | 44.14 |
| 6 | .2040 | 6 | 3-5/8 | 12.70 | — | — | — | — | 14.0 m | .5512 | 8-1/4 | — | — | 6-1/4 | 1/2 | 2 | 44.14 |
| 5 | .2055 | 6 | 3-5/8 | 12.70 | — | — | — | — | 9/16 | .5625 | 8-1/4 | 4-7/8 | 33.39 | 6-1/4 | 1/2 | 2 | 42.56 |
| 4 | .2090 | 6 | 3-5/8 | 12.70 | — | — | — | — | 37/64 | .5781 | 8-3/4 | 4-7/8 | 42.39 | 6-1/2 | 1/2 | 2 | 51.42 |
| 3 | .2130 | 6 | 3-5/8 | 12.70 | — | — | — | — | 19/32 | .5938 | 8-3/4 | 4-7/8 | 40.87 | 6-1/2 | 1/2 | 2 | 49.58 |
| 7/32 | .2188 | 6 | 3-5/8 | 9.58 | 4-3/8 | 7/32 | 1 | 12.80 | 39/64 | .6094 | 8-3/4 | 4-7/8 | 43.65 | 6-1/2 | 1/2 | 2 | 53.78 |
| 2 | .2210 | 6-1/8 | 3-3/4 | 12.70 | — | — | — | — | 5/8 | .6250 | 8-3/4 | 4-7/8 | 42.09 | 6-1/2 | 1/2 | 2 | 51.87 |
| 1 | .2280 | 6-1/8 | 3-3/4 | 12.70 | — | — | — | — | 41/64 | .6406 | 9 | 5-1/8 | 49.95 | 6-3/4 | 5/8 | 3 | 59.86 |
| A | .2340 | 6-1/8 | 3-3/4 | 16.00 | — | — | — | — | 16.5 m | .6496 | 9 | — | — | 6-3/4 | 5/8 | 3 | 59.86 |
| 15/64 | .2344 | 6-1/8 | 3-3/4 | 9.94 | 4-13/16 | 15/64 | 1 | 13.50 | 21/32 | .6562 | 9 | 5-1/8 | 48.16 | 6-3/4 | 5/8 | 3 | 57.72 |
| B | .2380 | 6-1/8 | 3-3/4 | 16.00 | — | — | — | — | 16.75 m | .6594 | 9-1/4 | — | — | 6-7/8 | 9/16 | 3 | 62.20 |
| C | .2420 | 6-1/8 | 3-3/4 | 16.00 | — | — | — | — | 17.0 m | .6692 | 9-1/4 | — | — | 6-7/8 | 9/16 | 3 | 62.20 |
| D | .2460 | 6-1/8 | 3-3/4 | 16.00 | — | — | — | — | 43/64 | .6719 | 9-1/4 | 5-3/8 | 53.68 | 6-7/8 | 5/8 | 3 | 62.20 |
| 1/4 | .2500 | 6-1/8 | 3-3/4 | 9.58 | 4-13/16 | 1/4 | 1 | 11.75 | 11/16 | .6875 | 9-1/4 | 5-3/8 | 51.78 | 6-7/8 | 5/8 | 3 | 62.20 |
| F | .2570 | 6-1/4 | 3-7/8 | 15.50 | — | — | — | — | 45/64 | .7031 | 9-1/2 | 5-5/8 | 59.60 | 7 | 5/8 | 3 | 71.42 |
| G | .2610 | 6-1/4 | 3-7/8 | 17.50 | — | — | — | — | 23/32 | .7188 | 9-1/2 | 5-5/8 | 61.90 | 7-1/8 | 5/8 | 3 | 71.42 |
| 17/64 | .2656 | 6-1/4 | 3-7/8 | 12.11 | 5 | 17/64 | 1 | 13.90 | 3/4 | .7500 | 9-3/4 | 5-7/8 | 59.75 | 7-3/8 | 3/4 | 3 | 72.05 |
| H | .2660 | 6-1/4 | 3-7/8 | 17.90 | — | — | — | — | 19.2 m | .7559 | 10 | — | — | 7-3/4 | 3/4 | 3 | 77.60 |
| I | .2720 | 6-1/4 | 3-7/8 | 17.90 | — | — | — | — | 51/64 | .7969 | 10 | — | — | 7-3/4 | 3/4 | 3 | 77.60 |
| J | .2770 | 6-1/4 | 3-7/8 | 17.90 | — | — | — | — | 13/16 | .8125 | 10 | — | — | 7-3/4 | 3/4 | 3 | 77.60 |
| K | .2810 | 6-1/4 | 3-7/8 | 17.90 | — | — | — | — | 7/8 | .8750 | 10 | — | — | 7-3/4 | 3/4 | 3 | 83.50 |
| 9/32 | .2812 | 6-1/4 | 3-7/8 | 11.68 | 5 | 9/32 | 1 | 13.90 | 31/32 | .9688 | 11 | 6-3/8 | 97.50 | 7-3/4 | 3/4 | 3 | 102.50 |
| L | .2900 | 6-3/8 | 4 | 19.15 | — | — | — | — | 1 | 1.0000 | 11 | — | — | 8 | 3/4 | 3 | 109.00 |
| M | .2950 | 6-3/8 | 4 | 19.15 | — | — | — | — | 1-1/64 | 1.0156 | 11-1/8 | — | — | 8-1/8 | 15/16 | 4 | 126.90 |
| 19/64 | .2969 | 6-3/8 | 4 | 12.25 | 5-1/8 | 19/64 | 1 | 14.35 | 1-3/32 | 1.0938 | 11-1/2 | — | — | 8-1/2 | 15/16 | 4 | 149.50 |
| N | .3020 | 6-3/8 | 4 | 19.50 | — | — | — | — | 1-1/8 | 1.1250 | 11-3/4 | — | — | 8-3/4 | 15/16 | 4 | 155.00 |
| 5/16 | .3125 | 6-3/8 | 4 | 11.80 | 5-1/8 | 5/16 | 1 | 13.00 | | | | | | | | | |

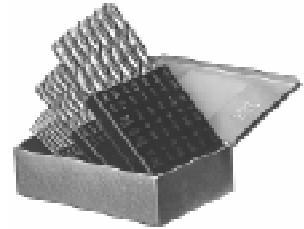
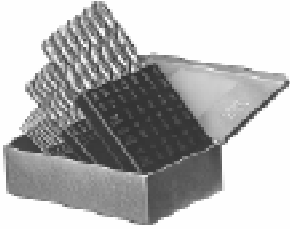


HIGH SPEED STEEL AND COBALT

TAPER LENGTH DRILLS

- ▶ LIST NO. 400 — HIGH SPEED STEEL, GENERAL PURPOSE, 118° POINT
- LIST NO. 410C* — SUPER COBALT, HEAVY DUTY, 135° SPLIT POINT

Please order in package quantity.



Taper length drills are designed for general purpose drilling where long length is required.

Used in production drilling, they have the same flute length as Taper Shank drills.

SET NO. 407F

29 Piece High Speed
Surface Treated Set
1/16 - 1/2 x 64ths in Metal Index
SET PRICE — \$327.00

SET NO. 407CF

29 Piece Cobalt Fractional Set
1/16 - 1/2 x 64ths in Metal Index
SET PRICE — \$672.00

FRACTIONAL SIZES

| Size | Dec. Equiv. | Flute Length | Overall Length | Pkg. Qty. | Price Each | |
|-------|-------------|--------------|----------------|-----------|-------------------|-----------------------|
| | | | | | H.S. List No. 400 | Cobalt List No. 410C* |
| 1/64 | .0156 | 5/16 | 1-1/2 | 12 | 9.48 | 17.38 |
| 1/32 | .0312 | 3/4 | 2 | 12 | 6.92 | 12.50 |
| 3/64 | .0469 | 1-1/8 | 2-1/4 | 12 | 3.26 | 7.25 |
| 1/16 | .0625 | 1-3/4 | 3 | 12 | 3.39 | 6.93 |
| 5/64 | .0781 | 2 | 3-3/4 | 12 | 3.98 | 8.08 |
| 3/32 | .0938 | 2-1/4 | 4-1/4 | 12 | 4.75 | 9.48 |
| 7/64 | .1094 | 2-1/2 | 4-5/8 | 12 | 6.01 | 12.17 |
| 1/8 | .1250 | 2-3/4 | 5-1/8 | 12 | 6.11 | 12.03 |
| 9/64 | .1406 | 3 | 5-3/8 | 12 | 7.41 | 14.77 |
| 5/32 | .1562 | 3 | 5-3/8 | 12 | 7.41 | 14.92 |
| 11/64 | .1719 | 3-3/8 | 5-3/4 | 12 | 7.47 | 14.92 |
| 3/16 | .1875 | 3-3/8 | 5-3/4 | 12 | 7.41 | 14.63 |
| 13/64 | .2031 | 3-5/8 | 6 | 12 | 8.73 | 17.42 |
| 7/32 | .2188 | 3-5/8 | 6 | 12 | 8.65 | 17.10 |
| 15/64 | .2344 | 3-3/4 | 6-1/8 | 12 | 8.73 | 18.06 |
| 1/4 | .2500 | 3-3/4 | 6-1/8 | 12 | 8.65 | 17.09 |
| 17/64 | .2656 | 3-7/8 | 6-1/4 | 12 | 10.67 | 22.31 |
| 9/32 | .2812 | 3-7/8 | 6-1/4 | 6 | 10.57 | 21.11 |
| 19/64 | .2969 | 4 | 6-3/8 | 6 | 10.82 | 22.31 |
| 5/16 | .3125 | 4 | 6-3/8 | 6 | 10.71 | 21.11 |
| 21/64 | .3281 | 4-1/8 | 6-1/2 | 6 | 12.39 | 25.67 |
| 11/32 | .3438 | 4-1/8 | 6-1/2 | 6 | 12.28 | 24.74 |
| 23/64 | .3594 | 4-1/4 | 6-3/4 | 6 | 14.58 | 30.25 |
| 3/8 | .3750 | 4-1/4 | 6-3/4 | 6 | 14.44 | 28.07 |
| 25/64 | .3906 | 4-3/8 | 7 | 6 | 15.22 | 31.44 |
| 13/32 | .4062 | 4-3/8 | 7 | 6 | 15.08 | 30.32 |
| 27/64 | .4219 | 4-5/8 | 7-1/4 | 6 | 16.43 | 34.11 |
| 7/16 | .4375 | 4-5/8 | 7-1/4 | 6 | 16.59 | 32.93 |
| 29/64 | .4531 | 4-3/4 | 7-1/2 | 6 | 18.58 | 38.65 |
| 15/32 | .4688 | 4-3/4 | 7-1/2 | 6 | 19.54 | 39.35 |
| 31/64 | .4844 | 4-3/4 | 7-3/4 | 6 | 20.59 | 42.77 |
| 1/2 | .5000 | 4-3/4 | 7-3/4 | 6 | 20.38 | 40.48 |
| 33/64 | .5156 | 4-3/4 | 8 | 1 | 29.17 | 55.45 |
| 17/32 | .5312 | 4-3/4 | 8 | 1 | 28.88 | 53.47 |
| 35/64 | .5469 | 4-7/8 | 8-1/4 | 1 | 30.66 | 59.92 |
| 9/16 | .5625 | 4-7/8 | 8-1/4 | 1 | 30.37 | 57.77 |
| 37/64 | .5781 | 4-7/8 | 8-3/4 | 1 | 35.84 | 69.95 |
| 19/32 | .5938 | 4-7/8 | 8-3/4 | 1 | 35.84 | 67.44 |
| 39/64 | .6094 | 4-7/8 | 8-3/4 | 1 | 37.09 | 69.95 |
| 5/8 | .6250 | 4-7/8 | 8-3/4 | 1 | 36.73 | 67.44 |
| 41/64 | .6406 | 5-1/8 | 9 | 1 | 44.70 | 78.58 |
| 21/32 | .6562 | 5-1/8 | 9 | 1 | 42.67 | 74.40 |
| 43/64 | .6719 | 5-3/8 | 9-1/4 | 1 | 52.50 | 90.24 |
| 11/16 | .6875 | 5-3/8 | 9-1/4 | 1 | 50.77 | 87.04 |
| 45/64 | .7031 | 5-5/8 | 9-1/2 | 1 | 55.28 | 98.78 |
| 23/32 | .7188 | 5-5/8 | 9-1/2 | 1 | 52.77 | 95.23 |
| 47/64 | .7344 | 5-7/8 | 9-3/4 | 1 | 59.45 | 104.53 |
| 3/4 | .7500 | 5-7/8 | 9-3/4 | 1 | 55.67 | 100.81 |

| Size | Dec. Equiv. | Flute Length | Overall Length | Pkg. Qty. | Price Each | |
|---------|-------------|--------------|----------------|-----------|-------------------|-----------------------|
| | | | | | H.S. List No. 400 | Cobalt List No. 410C* |
| 49/64 | .7656 | 6 | 9-7/8 | 1 | 65.28 | 123.08 |
| 25/32 | .7812 | 6 | 9-7/8 | 1 | 62.33 | 118.69 |
| 51/64 | .7969 | 6-1/8 | 10 | 1 | 70.21 | 134.75 |
| 13/16 | .8125 | 6-1/8 | 10 | 1 | 66.39 | 127.57 |
| 53/64 | .8281 | 6-1/8 | 10 | 1 | 75.96 | 136.93 |
| 27/32 | .8438 | 6-1/8 | 10 | 1 | 70.55 | 132.04 |
| 55/64 | .8594 | 6-1/8 | 10 | 1 | 79.78 | 143.87 |
| 7/8 | .8750 | 6-1/8 | 10 | 1 | 74.12 | 138.74 |
| 57/64 | .8906 | 6-1/8 | 10 | 1 | 83.13 | 152.65 |
| 29/32 | .9062 | 6-1/8 | 10 | 1 | 77.21 | 144.54 |
| 59/64 | .9219 | 6-1/8 | 10-3/4 | 1 | 90.46 | 166.09 |
| 15/16 | .9375 | 6-1/8 | 10-3/4 | 1 | 84.01 | 157.26 |
| 61/64 | .9531 | 6-3/8 | 11 | 1 | 99.79 | 183.34 |
| 31/32 | .9688 | 6-3/8 | 11 | 1 | 92.68 | 173.59 |
| 63/64 | .9844 | 6-3/8 | 11 | 1 | 104.03 | 187.63 |
| 1 | 1.0000 | 6-3/8 | 11 | 1 | 96.61 | 180.93 |
| 1-1/64 | 1.0156 | 6-1/2 | 11-1/8 | 1 | 137.11 | — |
| 1-1/32 | 1.0312 | 6-1/2 | 11-1/8 | 1 | 121.19 | — |
| 1-3/64 | 1.0469 | 6-5/8 | 11-1/4 | 1 | 141.80 | — |
| 1-1/16 | 1.0625 | 6-5/8 | 11-1/4 | 1 | 125.33 | — |
| 1-5/64 | 1.0781 | 6-7/8 | 11-1/2 | 1 | 152.13 | — |
| 1-3/32 | 1.0938 | 6-7/8 | 11-1/2 | 1 | 134.45 | — |
| 1-7/64 | 1.1094 | 7-1/8 | 11-3/4 | 1 | 157.89 | — |
| 1-1/8 | 1.1250 | 7-1/8 | 11-3/4 | 1 | 133.21 | — |
| 1-9/64 | 1.1406 | 7-1/4 | 11-7/8 | 1 | 158.92 | — |
| 1-5/32 | 1.1562 | 7-1/4 | 11-7/8 | 1 | 151.89 | — |
| 1-11/64 | 1.1719 | 7-3/8 | 12 | 1 | 171.11 | — |
| 1-3/16 | 1.1875 | 7-3/8 | 12 | 1 | 156.10 | — |
| 1-13/64 | 1.2031 | 7-1/2 | 12-1/8 | 1 | 176.22 | — |
| 1-7/32 | 1.2188 | 7-1/2 | 12-1/8 | 1 | 160.75 | — |
| 1-15/64 | 1.2344 | 7-7/8 | 12-1/2 | 1 | 183.28 | — |
| 1-1/4 | 1.2500 | 7-7/8 | 12-1/2 | 1 | 167.22 | — |
| 1-9/32 | 1.2656 | 8-1/2 | 14-1/8 | 1 | 194.10 | — |
| 1-5/16 | 1.3125 | 8-5/8 | 14-1/4 | 1 | 209.00 | — |
| 1-11/32 | 1.3438 | 8-3/4 | 14-3/8 | 1 | 215.00 | — |
| 1-3/8 | 1.3750 | 8-7/8 | 14-1/2 | 1 | 224.17 | — |
| 1-13/32 | 1.4062 | 9 | 14-5/8 | 1 | 234.10 | — |
| 1-7/16 | 1.4375 | 9-1/8 | 14-3/4 | 1 | 244.27 | — |
| 1-15/32 | 1.4688 | 9-1/4 | 14-7/8 | 1 | 254.40 | — |
| 1-1/2 | 1.5000 | 9-3/8 | 15 | 1 | 273.83 | — |
| 1-9/16 | 1.5625 | 9-5/8 | 15-1/4 | 1 | 306.41 | — |
| 1-5/8 | 1.6250 | 9-7/8 | 15-5/8 | 1 | 345.97 | — |
| 1-11/16 | 1.6875 | 10-1/8 | 16 | 1 | 399.66 | — |
| 1-3/4 | 1.7500 | 10-1/2 | 16-1/4 | 1 | 416.90 | — |
| 1-13/16 | 1.8125 | 10-1/2 | 16-1/4 | 1 | 497.35 | — |
| 1-7/8 | 1.8750 | 10-5/8 | 16-1/4 | 1 | 545.00 | — |
| 1-15/16 | 1.9375 | 10-3/4 | 16-5/8 | 1 | 563.00 | — |
| 2 | 2.0000 | 10-3/4 | 17-1/4 | 1 | 574.00 | — |

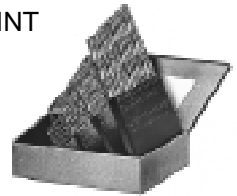
* Cobalt sizes over 1/2" furnished with notched point.



TAPER LENGTH DRILLS



- ▶ LIST NO. 400 — HIGH SPEED STEEL, GENERAL PURPOSE, 118° POINT
 - LIST NO. 410C* — SUPER COBALT, HEAVY DUTY, 135° SPLIT POINT
- Please order in package quantity.*



SET NO. 407L
26 Piece High Speed
Taper Length
A - Z Set with Metal Index
SET PRICE — \$420.00

Taper length drills are used where a longer overall length and flute length are required. High speed drills are good for general purpose application and cobalt drills are good for stainless and other tough alloy steels, castings, and forgings.

SET NO. 407W
60 Piece High Speed
Taper Length
No. 1-60 Set with Metal Index
SET PRICE — \$512.00

WIRE GAUGE SIZES

| Size | Dec. Equiv. | Flute Length | Overall Length | Pkg. Qty. | Price Each | |
|------|-------------|--------------|----------------|-----------|-------------------|----------------------|
| | | | | | H.S. List No. 400 | Cobalt List No. 410C |
| 1 | .2280 | 3-3/4 | 6-1/8 | 12 | 11.79 | 19.58 |
| 2 | .2210 | 3-3/4 | 6-1/8 | 12 | 11.79 | 19.58 |
| 3 | .2130 | 3-5/8 | 6 | 12 | 11.43 | 19.58 |
| 4 | .2090 | 3-5/8 | 6 | 12 | 11.43 | 19.58 |
| 5 | .2055 | 3-5/8 | 6 | 12 | 11.43 | 19.58 |
| 6 | .2040 | 3-5/8 | 6 | 12 | 11.43 | 19.58 |
| 7 | .2010 | 3-5/8 | 6 | 12 | 11.43 | 19.58 |
| 8 | .1990 | 3-5/8 | 6 | 12 | 11.43 | 19.58 |
| 9 | .1960 | 3-5/8 | 6 | 12 | 11.43 | 19.58 |
| 10 | .1935 | 3-5/8 | 6 | 12 | 11.43 | 19.58 |
| 11 | .1910 | 3-5/8 | 6 | 12 | 11.43 | 19.58 |
| 12 | .1890 | 3-5/8 | 6 | 12 | 11.43 | 19.58 |
| 13 | .1850 | 3-3/8 | 5-3/4 | 12 | 10.35 | 17.88 |
| 14 | .1820 | 3-3/8 | 5-3/4 | 12 | 10.35 | 17.88 |
| 15 | .1800 | 3-3/8 | 5-3/4 | 12 | 10.35 | 17.88 |
| 16 | .1770 | 3-3/8 | 5-3/4 | 12 | 10.35 | 17.88 |
| 17 | .1730 | 3-3/8 | 5-3/4 | 12 | 10.35 | 17.88 |
| 18 | .1695 | 3-3/8 | 5-3/4 | 12 | 10.35 | 17.88 |
| 19 | .1660 | 3-3/8 | 5-3/4 | 12 | 10.35 | 17.88 |
| 20 | .1610 | 3-3/8 | 5-3/4 | 12 | 10.35 | 17.88 |
| 21 | .1590 | 3-3/8 | 5-3/4 | 12 | 10.35 | 17.88 |
| 22 | .1570 | 3-3/8 | 5-3/4 | 12 | 10.35 | 17.88 |
| 23 | .1540 | 3 | 5-3/8 | 12 | 10.35 | 17.88 |
| 24 | .1520 | 3 | 5-3/8 | 12 | 10.35 | 17.88 |
| 25 | .1495 | 3 | 5-3/8 | 12 | 10.35 | 17.88 |
| 26 | .1470 | 3 | 5-3/8 | 12 | 10.35 | 17.88 |
| 27 | .1440 | 3 | 5-3/8 | 12 | 10.35 | 17.88 |
| 28 | .1405 | 3 | 5-3/8 | 12 | 10.35 | 15.85 |
| 29 | .1360 | 3 | 5-3/8 | 12 | 10.35 | 15.85 |
| 30 | .1285 | 3 | 5-3/8 | 12 | 10.35 | 15.85 |
| 31 | .1200 | 2-3/4 | 5-1/8 | 12 | 10.20 | 14.71 |
| 32 | .1160 | 2-3/4 | 5-1/8 | 12 | 10.20 | 14.71 |
| 33 | .1130 | 2-3/4 | 5-1/8 | 12 | 10.20 | 14.71 |
| 34 | .1110 | 2-3/4 | 5-1/8 | 12 | 10.20 | 14.71 |
| 35 | .1100 | 2-3/4 | 5-1/8 | 12 | 10.20 | 14.71 |
| 36 | .1065 | 2-1/2 | 4-5/8 | 12 | 7.63 | 14.30 |
| 37 | .1040 | 2-1/2 | 4-5/8 | 12 | 7.63 | 14.30 |
| 38 | .1015 | 2-1/2 | 4-5/8 | 12 | 7.63 | 14.30 |
| 39 | .0995 | 2-1/2 | 4-5/8 | 12 | 6.62 | 14.30 |
| 40 | .0980 | 2-1/2 | 4-5/8 | 12 | 6.62 | 14.30 |

| Size | Dec. Equiv. | Flute Length | Overall Length | Pkg. Qty. | Price Each | |
|------|-------------|--------------|----------------|-----------|-------------------|-----------------------|
| | | | | | H.S. List No. 400 | Cobalt List No. 410C* |
| 41 | .0960 | 2-1/2 | 4-5/8 | 12 | 6.62 | 14.30 |
| 42 | .0935 | 2-1/4 | 4-1/4 | 12 | 5.63 | 13.20 |
| 43 | .0890 | 2-1/4 | 4-1/4 | 12 | 5.63 | 13.20 |
| 44 | .0860 | 2-1/4 | 4-1/4 | 12 | 5.63 | 13.20 |
| 45 | .0820 | 2-1/4 | 4-1/4 | 12 | 5.63 | 13.20 |
| 46 | .0810 | 2-1/4 | 4-1/4 | 12 | 5.63 | 13.20 |
| 47 | .0785 | 2-1/4 | 4-1/4 | 12 | 5.63 | 13.20 |
| 48 | .0760 | 2 | 3-3/4 | 12 | 4.67 | 12.50 |
| 49 | .0730 | 2 | 3-3/4 | 12 | 4.67 | 12.50 |
| 50 | .0700 | 2 | 3-3/4 | 12 | 4.67 | 12.50 |
| 51 | .0670 | 2 | 3-3/4 | 12 | 4.67 | 12.50 |
| 52 | .0635 | 2 | 3-3/4 | 12 | 4.67 | 12.50 |
| 53 | .0595 | 1-3/4 | 3 | 12 | 4.67 | 12.50 |
| 54 | .0550 | 1-3/4 | 3 | 12 | 4.67 | 12.50 |
| 55 | .0520 | 1-3/4 | 3 | 12 | 4.67 | 12.50 |
| 56 | .0465 | 1-1/8 | 2-1/4 | 12 | 4.67 | 12.50 |
| 57 | .0430 | 1-1/8 | 2-1/4 | 12 | 4.67 | 12.50 |
| 58 | .0420 | 1-1/8 | 2-1/4 | 12 | 4.67 | 12.50 |
| 59 | .0410 | 1-1/8 | 2-1/4 | 12 | 4.67 | 12.50 |
| 60 | .0400 | 1-1/8 | 2-1/4 | 12 | 4.67 | 12.50 |
| 61 | .0390 | 1-1/8 | 2-1/4 | 12 | 4.50 | — |
| 62 | .0380 | 3/4 | 2 | 12 | 5.67 | — |
| 63 | .0370 | 3/4 | 2 | 12 | 5.67 | — |
| 64 | .0360 | 3/4 | 2 | 12 | 5.67 | — |
| 65 | .0350 | 3/4 | 2 | 12 | 5.67 | — |
| 66 | .0330 | 3/4 | 2 | 12 | 5.67 | — |
| 67 | .0320 | 3/4 | 2 | 12 | 5.67 | — |
| 68 | .0310 | 3/4 | 2 | 12 | 5.67 | 13.30 |
| 69 | .0292 | 3/4 | 2 | 12 | 5.67 | 13.30 |
| 70 | .0280 | 3/4 | 2 | 12 | 5.99 | — |
| 71 | .0260 | 3/4 | 2 | 12 | 5.99 | — |
| 72 | .0250 | 5/16 | 1-1/2 | 12 | 5.99 | — |
| 73 | .0240 | 5/16 | 1-1/2 | 12 | 5.99 | — |
| 74 | .0225 | 5/16 | 1-1/2 | 12 | 5.99 | — |
| 75 | .0210 | 5/16 | 1-1/2 | 12 | 5.99 | — |
| 76 | .0200 | 5/16 | 1-1/2 | 12 | 7.17 | — |
| 77 | .0180 | 5/16 | 1-1/2 | 12 | 7.24 | — |
| 78 | .0160 | 5/16 | 1-1/2 | 12 | 7.24 | 14.50 |
| 79 | .0145 | 5/16 | 1-1/2 | 12 | 7.24 | 14.50 |
| 80 | .0135 | 5/16 | 1-1/2 | 12 | 7.24 | 14.50 |

*Cobalt sizes 53 - 80 are furnished with 135° not split.

LETTER SIZES

| Size | Dec. Equiv. | Flute Length | Overall Length | Pkg. Qty. | Price Each | |
|------|-------------|--------------|----------------|-----------|-------------------|----------------------|
| | | | | | H.S. List No. 400 | Cobalt List No. 410C |
| A | .2340 | 3-3/4 | 6-1/8 | 12 | 13.20 | 22.27 |
| B | .2380 | 3-3/4 | 6-1/8 | 12 | 13.20 | 22.27 |
| C | .2420 | 3-3/4 | 6-1/8 | 12 | 13.20 | 22.27 |
| D | .2460 | 3-3/4 | 6-1/8 | 12 | 13.35 | 22.27 |
| E | .2500 | 3-3/4 | 6-1/8 | 12 | 8.65 | 17.09 |
| F | .2570 | 3-7/8 | 6-1/4 | 12 | 13.98 | 26.50 |
| G | .2610 | 3-7/8 | 6-1/4 | 12 | 14.51 | 26.50 |
| H | .2660 | 3-7/8 | 6-1/4 | 12 | 15.07 | 26.50 |
| I | .2720 | 3-7/8 | 6-1/4 | 12 | 15.07 | 26.50 |
| J | .2770 | 3-7/8 | 6-1/4 | 6 | 15.07 | 26.50 |
| K | .2810 | 3-7/8 | 6-1/4 | 6 | 15.07 | 26.50 |
| L | .2900 | 4 | 6-3/8 | 6 | 16.14 | 26.50 |
| M | .2950 | 4 | 6-3/8 | 6 | 16.14 | 26.50 |

| Size | Dec. Equiv. | Flute Length | Overall Length | Pkg. Qty. | Price Each | |
|------|-------------|--------------|----------------|-----------|-------------------|----------------------|
| | | | | | H.S. List No. 400 | Cobalt List No. 410C |
| N | .3020 | 4 | 6-3/8 | 6 | 16.44 | 26.50 |
| O | .3160 | 4-1/8 | 6-1/2 | 6 | 16.44 | 29.12 |
| P | .3230 | 4-1/8 | 6-1/2 | 6 | 16.44 | 29.12 |
| Q | .3320 | 4-1/8 | 6-1/2 | 6 | 16.44 | 29.12 |
| R | .3390 | 4-1/8 | 6-1/2 | 6 | 17.32 | 29.12 |
| S | .3480 | 4-1/4 | 6-3/4 | 6 | 17.32 | 35.90 |
| T | .3580 | 4-1/4 | 6-3/4 | 6 | 17.32 | 35.90 |
| U | .3680 | 4-1/4 | 6-3/4 | 6 | 18.20 | 35.90 |
| V | .3770 | 4-3/8 | 7 | 6 | 18.20 | 37.12 |
| W | .3860 | 4-3/8 | 7 | 6 | 18.20 | 37.12 |
| X | .3970 | 4-3/8 | 7 | 6 | 18.76 | 37.12 |
| Y | .4040 | 4-3/8 | 7 | 6 | 18.76 | 37.12 |
| Z | .4130 | 4-5/8 | 7-1/4 | 6 | 19.47 | 39.90 |



HIGH SPEED STEEL

METRIC TAPER LENGTH DRILLS

GENERAL PURPOSE, 118° POINT

● LIST NO. 401

Please order in package quantity.
 1.00 mm — 7.00 mm — 12 Pc. Per Pkg.
 7.20 mm — 12.50 mm — 6 Pc. Per Pkg.
 12.80 mm — 38.00 mm — 1 Pc. Per Pkg.
 Tanged sizes available. Please Inquire



Taper length drills have longer flute and overall length than Jobber length drills.

| Size mm | Dec. Equiv. (Inches) | Flute Length | Overall Length | Price Each |
|---------|----------------------|--------------|----------------|------------|
| 1.00 | .0394 | 1-1/8 | 2-1/4 | 3.36 |
| 1.05 | .0413 | 1-1/8 | 2-1/4 | 3.80 |
| 1.10 | .0433 | 1-1/8 | 2-1/4 | 3.66 |
| 1.15 | .0453 | 1-1/8 | 2-1/4 | 3.80 |
| 1.20 | .0472 | 1-3/4 | 3 | 3.96 |
| 1.25 | .0492 | 1-3/4 | 3 | 3.94 |
| 1.30 | .0512 | 1-3/4 | 3 | 3.96 |
| 1.35 | .0531 | 1-3/4 | 3 | 4.12 |
| 1.40 | .0551 | 1-3/4 | 3 | 3.96 |
| 1.45 | .0571 | 1-3/4 | 3 | 4.12 |
| 1.50 | .0591 | 1-3/4 | 3 | 3.63 |
| 1.55 | .0610 | 1-3/4 | 3 | 4.22 |
| 1.60 | .0630 | 2 | 3-3/4 | 4.57 |
| 1.65 | .0650 | 2 | 3-3/4 | 4.76 |
| 1.70 | .0669 | 2 | 3-3/4 | 4.57 |
| 1.75 | .0689 | 2 | 3-3/4 | 4.76 |
| 1.80 | .0709 | 2 | 3-3/4 | 4.57 |
| 1.85 | .0728 | 2 | 3-3/4 | 4.76 |
| 1.90 | .0748 | 2 | 3-3/4 | 4.57 |
| 1.95 | .0768 | 2 | 3-3/4 | 4.76 |
| 2.00 | .0787 | 2-1/4 | 4-1/4 | 4.97 |
| 2.05 | .0807 | 2-1/4 | 4-1/4 | 5.75 |
| 2.10 | .0827 | 2-1/4 | 4-1/4 | 5.54 |
| 2.15 | .0846 | 2-1/4 | 4-1/4 | 5.75 |
| 2.20 | .0866 | 2-1/4 | 4-1/4 | 5.54 |
| 2.25 | .0886 | 2-1/4 | 4-1/4 | 5.75 |
| 2.30 | .0906 | 2-1/4 | 4-1/4 | 5.54 |
| 2.35 | .0925 | 2-1/4 | 4-1/4 | 5.75 |
| 2.40 | .0945 | 2-1/2 | 4-5/8 | 6.91 |
| 2.45 | .0965 | 2-1/2 | 4-5/8 | 7.15 |
| 2.50 | .0984 | 2-1/2 | 4-5/8 | 6.18 |
| 2.60 | .1024 | 2-1/2 | 4-5/8 | 6.91 |
| 2.70 | .1063 | 2-1/2 | 4-5/8 | 6.91 |
| 2.80 | .1102 | 2-3/4 | 5-1/8 | 7.15 |
| 2.90 | .1142 | 2-3/4 | 5-1/8 | 7.15 |
| 3.00 | .1181 | 2-3/4 | 5-1/8 | 6.40 |
| 3.10 | .1220 | 2-3/4 | 5-1/8 | 7.15 |
| 3.20 | .1260 | 3 | 5-3/8 | 7.75 |
| 3.30 | .1299 | 3 | 5-3/8 | 7.75 |
| 3.40 | .1339 | 3 | 5-3/8 | 8.29 |
| 3.50 | .1378 | 3 | 5-3/8 | 7.76 |
| 3.60 | .1417 | 3 | 5-3/8 | 8.65 |
| 3.70 | .1457 | 3 | 5-3/8 | 8.65 |
| 3.80 | .1496 | 3 | 5-3/8 | 8.65 |
| 3.90 | .1535 | 3 | 5-3/8 | 8.65 |
| 4.00 | .1575 | 3-3/8 | 5-3/4 | 7.76 |
| 4.10 | .1614 | 3-3/8 | 5-3/4 | 8.65 |
| 4.20 | .1654 | 3-3/8 | 5-3/4 | 7.76 |
| 4.30 | .1693 | 3-3/8 | 5-3/4 | 8.66 |
| 4.40 | .1732 | 3-3/8 | 5-3/4 | 8.66 |
| 4.50 | .1772 | 3-3/8 | 5-3/4 | 7.76 |
| 4.60 | .1811 | 3-3/8 | 5-3/4 | 8.65 |
| 4.70 | .1850 | 3-3/8 | 5-3/4 | 8.65 |

| Size mm | Dec. Equiv. (Inches) | Flute Length | Overall Length | Price Each |
|---------|----------------------|--------------|----------------|------------|
| 4.80 | .1890 | 3-5/8 | 6 | 9.71 |
| 4.90 | .1929 | 3-5/8 | 6 | 10.14 |
| 5.00 | .1968 | 3-5/8 | 6 | 9.07 |
| 5.10 | .2008 | 3-5/8 | 6 | 10.14 |
| 5.20 | .2047 | 3-5/8 | 6 | 10.14 |
| 5.30 | .2087 | 3-5/8 | 6 | 10.14 |
| 5.40 | .2126 | 3-5/8 | 6 | 10.14 |
| 5.50 | .2165 | 3-5/8 | 6 | 9.07 |
| 5.60 | .2205 | 3-3/4 | 6-1/8 | 10.14 |
| 5.70 | .2244 | 3-3/4 | 6-1/8 | 10.14 |
| 5.80 | .2283 | 3-3/4 | 6-1/8 | 10.14 |
| 5.90 | .2323 | 3-3/4 | 6-1/8 | 11.90 |
| 6.00 | .2362 | 3-3/4 | 6-1/8 | 9.70 |
| 6.10 | .2402 | 3-3/4 | 6-1/8 | 10.14 |
| 6.20 | .2441 | 3-3/4 | 6-1/8 | 9.28 |
| 6.30 | .2480 | 3-3/4 | 6-1/8 | 9.82 |
| 6.40 | .2520 | 3-7/8 | 6-1/4 | 11.33 |
| 6.50 | .2559 | 3-7/8 | 6-1/4 | 11.07 |
| 6.80 | .2677 | 3-7/8 | 6-1/4 | 11.33 |
| 7.00 | .2756 | 3-7/8 | 6-1/4 | 11.07 |
| 7.20 | .2835 | 4 | 6-3/8 | 11.47 |
| 7.50 | .2953 | 4 | 6-3/8 | 11.47 |
| 7.80 | .3071 | 4 | 6-3/8 | 12.53 |
| 8.00 | .3150 | 4-1/8 | 6-1/2 | 12.87 |
| 8.20 | .3228 | 4-1/8 | 6-1/2 | 14.36 |
| 8.50 | .3346 | 4-1/8 | 6-1/2 | 12.87 |
| 8.80 | .3465 | 4-1/4 | 6-3/4 | 16.88 |
| 9.00 | .3543 | 4-1/4 | 6-3/4 | 15.14 |
| 9.20 | .3622 | 4-1/4 | 6-3/4 | 16.88 |
| 9.50 | .3740 | 4-1/4 | 6-3/4 | 15.49 |
| 9.80 | .3858 | 4-3/8 | 7 | 17.65 |
| 10.00 | .3937 | 4-3/8 | 7 | 15.80 |
| 10.20 | .4016 | 4-3/8 | 7 | 16.17 |
| 10.50 | .4134 | 4-5/8 | 7-1/4 | 17.06 |
| 10.80 | .4252 | 4-5/8 | 7-1/4 | 19.40 |
| 11.00 | .4331 | 4-5/8 | 7-1/4 | 17.38 |
| 11.20 | .4409 | 4-3/4 | 7-1/2 | 21.55 |
| 11.50 | .4528 | 4-3/4 | 7-1/2 | 19.31 |
| 11.80 | .4646 | 4-3/4 | 7-1/2 | 22.88 |
| 12.00 | .4724 | 4-3/4 | 7-3/4 | 21.37 |
| 12.20 | .4803 | 4-3/4 | 7-3/4 | 23.87 |
| 12.50 | .4921 | 4-3/4 | 7-3/4 | 21.37 |
| 12.80 | .5039 | 4-3/4 | 8 | 32.39 |
| 13.00 | .5118 | 4-3/4 | 8 | 30.28 |
| 13.20 | .5197 | 4-3/4 | 8 | 32.99 |
| 13.50 | .5315 | 4-3/4 | 8 | 34.07 |
| 13.80 | .5433 | 4-7/8 | 8-1/4 | 34.69 |
| 14.00 | .5512 | 4-7/8 | 8-1/4 | 31.84 |
| 14.25 | .5610 | 4-7/8 | 8-1/4 | 34.69 |
| 14.50 | .5709 | 4-7/8 | 8-3/4 | 39.82 |
| 14.75 | .5807 | 4-7/8 | 8-3/4 | 40.54 |
| 15.00 | .5906 | 4-7/8 | 8-3/4 | 39.81 |
| 15.25 | .6004 | 4-7/8 | 8-3/4 | 41.96 |

| Size mm | Dec. Equiv. (Inches) | Flute Length | Overall Length | Price Each |
|---------|----------------------|--------------|----------------|------------|
| 15.50 | .6102 | 4-7/8 | 8-3/4 | 41.20 |
| 15.75 | .6201 | 4-7/8 | 8-3/4 | 41.97 |
| 16.00 | .6299 | 5-1/8 | 9 | 46.97 |
| 16.25 | .6398 | 5-1/8 | 9 | 47.84 |
| 16.50 | .6496 | 5-1/8 | 9 | 46.97 |
| 16.75 | .6594 | 5-3/8 | 9-1/4 | 56.18 |
| 17.00 | .6693 | 5-3/8 | 9-1/4 | 55.15 |
| 17.25 | .6791 | 5-3/8 | 9-1/4 | 56.89 |
| 17.50 | .6890 | 5-5/8 | 9-1/2 | 58.88 |
| 17.75 | .6988 | 5-5/8 | 9-1/2 | 58.88 |
| 18.00 | .7087 | 5-5/8 | 9-1/2 | 58.88 |
| 18.50 | .7283 | 5-7/8 | 9-3/4 | 67.32 |
| 19.00 | .7480 | 5-7/8 | 9-3/4 | 64.51 |
| 19.50 | .7677 | 6 | 9-7/8 | 68.49 |
| 20.00 | .7874 | 6-1/8 | 10 | 73.52 |
| 20.50 | .8071 | 6-1/8 | 10 | 78.13 |
| 21.00 | .8268 | 6-1/8 | 10 | 79.44 |
| 21.50 | .8465 | 6-1/8 | 10 | 84.96 |
| 22.00 | .8661 | 6-1/8 | 10 | 79.97 |
| 22.50 | .8858 | 6-1/8 | 10 | 86.95 |
| 23.00 | .9055 | 6-1/8 | 10 | 86.95 |
| 23.50 | .9252 | 6-1/8 | 10-3/4 | 96.37 |
| 24.00 | .9449 | 6-3/8 | 11 | 104.40 |
| 24.50 | .9646 | 6-3/8 | 11 | 106.33 |
| 25.00 | .9843 | 6-3/8 | 11 | 105.14 |
| 25.50 | 1.0039 | 6-1/2 | 11-1/8 | 132.67 |
| 26.00 | 1.0236 | 6-1/2 | 11-1/8 | 130.28 |
| 26.50 | 1.0433 | 6-5/8 | 11-1/4 | 137.24 |
| 27.00 | 1.0630 | 6-5/8 | 11-1/4 | 144.53 |
| 27.50 | 1.0827 | 6-7/8 | 11-1/2 | 147.19 |
| 28.00 | 1.1024 | 7-1/8 | 11-3/4 | 150.03 |
| 28.50 | 1.1220 | 7-1/8 | 11-3/4 | 152.81 |
| 29.00 | 1.1417 | 7-1/4 | 11-7/8 | 163.26 |
| 29.50 | 1.1614 | 7-3/8 | 12 | 179.06 |
| 30.00 | 1.1811 | 7-3/8 | 12 | 175.81 |
| 30.50 | 1.2008 | 7-1/2 | 12-1/8 | 186.26 |
| 31.00 | 1.2205 | 7-7/8 | 12-1/2 | 190.06 |
| 31.50 | 1.2402 | 7-7/8 | 12-1/2 | 193.57 |
| 32.00 | 1.2598 | 8-1/2 | 14-1/8 | 222.75 |
| 32.50 | 1.2795 | 8-1/2 | 14-1/8 | 222.75 |
| 33.00 | 1.2992 | 8-5/8 | 14-1/4 | 231.00 |
| 33.50 | 1.3189 | 8-3/4 | 14-3/8 | 237.50 |
| 34.00 | 1.3386 | 8-3/4 | 14-3/8 | 237.50 |
| 34.50 | 1.3583 | 8-7/8 | 14-1/2 | 247.50 |
| 35.00 | 1.3780 | 9 | 14-5/8 | 260.70 |
| 35.50 | 1.3976 | 9 | 14-5/8 | 260.70 |
| 36.00 | 1.4173 | 9-1/8 | 14-3/4 | 268.95 |
| 36.50 | 1.4370 | 9-1/8 | 14-3/4 | 268.95 |
| 37.00 | 1.4567 | 9-1/4 | 14-7/8 | 292.20 |
| 37.50 | 1.4764 | 9-3/8 | 15 | 299.00 |
| 38.00 | 1.4961 | 9-3/8 | 15 | 299.00 |

PARABOLIC FLUTE DRILLS

TAPER LENGTH

► LIST NO. 400PF — 135° SPLIT POINT

Parabolic drills are for deep hole drilling at higher feed rates in aluminum alloys and other low to medium tensile strength materials

Please order in package quantity.

FRACTIONAL SIZES

| Size | Dec. Equiv. | Flute Length | Overall Length | Pkg. Qty. | Price Each |
|-------|-------------|--------------|----------------|-----------|------------|
| 1/16 | .0625 | 1-3/4 | 3 | 12 | 5.45 |
| 5/64 | .0781 | 2 | 3-3/4 | 12 | 5.85 |
| 3/32 | .0938 | 2-1/4 | 4-1/4 | 12 | 6.98 |
| 7/64 | .1094 | 2-1/2 | 4-5/8 | 12 | 7.55 |
| 1/8 | .1250 | 2-3/4 | 5-1/8 | 12 | 8.60 |
| 9/64 | .1406 | 3 | 5-3/8 | 12 | 11.49 |
| 5/32 | .1562 | 3 | 5-3/8 | 12 | 10.40 |
| 11/64 | .1719 | 3-3/8 | 5-3/4 | 12 | 12.20 |
| 3/16 | .1875 | 3-3/8 | 5-3/4 | 12 | 10.38 |
| 13/64 | .2031 | 3-5/8 | 6 | 12 | 13.99 |
| 7/32 | .2188 | 3-5/8 | 6 | 12 | 15.07 |
| 15/64 | .2344 | 3-3/4 | 6-1/8 | 12 | 15.10 |
| 1/4 | .2500 | 3-3/4 | 6-1/8 | 12 | 12.80 |

| Size | Dec. Equiv. | Flute Length | Overall Length | Pkg. Qty. | Price Each |
|-------|-------------|--------------|----------------|-----------|------------|
| 17/64 | .2656 | 3-7/8 | 6-1/4 | 12 | 15.81 |
| 9/32 | .2812 | 3-7/8 | 6-1/4 | 6 | 15.00 |
| 19/64 | .2969 | 4 | 6-3/8 | 6 | 17.14 |
| 5/16 | .3125 | 4 | 6-3/8 | 6 | 15.00 |
| 21/64 | .3281 | 4-1/8 | 6-1/2 | 6 | 17.51 |
| 11/32 | .3438 | 4-1/8 | 6-1/2 | 6 | 17.51 |
| 23/64 | .3594 | 4-1/4 | 6-3/4 | 6 | 20.94 |
| 3/8 | .3750 | 4-1/4 | 6-3/4 | 6 | 20.40 |
| 25/64 | .3906 | 4-3/8 | 7 | 6 | 21.65 |
| 13/32 | .4062 | 4-3/8 | 7 | 6 | 21.95 |
| 27/64 | .4219 | 4-5/8 | 7-1/4 | 6 | 21.15 |
| 7/16 | .4375 | 4-5/8 | 7-1/4 | 6 | 25.45 |
| 29/64 | .4531 | 4-3/4 | 7-1/2 | 6 | 27.60 |

| Size | Dec. Equiv. | Flute Length | Overall Length | Pkg. Qty. | Price Each |
|-------|-------------|--------------|----------------|-----------|------------|
| 15/32 | .4688 | 4-3/4 | 7-1/2 | 6 | 27.81 |
| 31/64 | .4844 | 4-3/4 | 7-3/4 | 6 | 30.15 |
| 1/2 | .5000 | 4-3/4 | 7-3/4 | 6 | 30.00 |
| 33/64 | .5156 | 4-3/4 | 8 | 1 | 45.90 |
| 17/32 | .5312 | 4-3/4 | 8 | 1 | 46.90 |
| 9/16 | .5625 | 4-7/8 | 8-1/4 | 1 | 49.00 |
| 19/32 | .5938 | 4-7/8 | 8-3/4 | 1 | 56.50 |
| 5/8 | .6250 | 4-7/8 | 8-3/4 | 1 | 59.60 |
| 11/16 | .6875 | 5-3/8 | 9-1/4 | 1 | 77.00 |
| 23/32 | .7188 | 5-5/8 | 9-1/2 | 1 | 81.50 |
| 3/4 | .7500 | 5-7/8 | 9-3/4 | 1 | 89.00 |

TAPER LENGTH DRILLS

FAST SPIRAL



● LIST NO. 400F — BRIGHT FINISH, 118° POINT

Please order in package quantity.



These drills have been especially designed for use through long bushings or where extra length is required. They are recommended for drilling deep holes in nonferrous materials such as aluminum, zinc die cast, magnesium, copper and some plastics.

FRACTIONAL SIZES

| Size | Dec. Equiv. | Flute Length | Overall Length | Pkg. Qty. | Price Each | Size | Dec. Equiv. | Flute Length | Overall Length | Pkg. Qty. | Price Each | Size | Dec. Equiv. | Flute Length | Overall Length | Pkg. Qty. | Price Each |
|-------|-------------|--------------|----------------|-----------|------------|-------|-------------|--------------|----------------|-----------|------------|-------|-------------|--------------|----------------|-----------|------------|
| 3/64 | .0469 | 1-1/8 | 2-1/4 | 12 | 4.85 | 7/32 | .2188 | 3-5/8 | 6 | 12 | 11.53 | 25/64 | .3906 | 4-3/8 | 7 | 6 | 19.44 |
| 1/16 | .0625 | 1-3/4 | 3 | 12 | 4.77 | 15/64 | .2344 | 3-3/4 | 6-1/8 | 12 | 13.24 | 13/32 | .4062 | 4-3/8 | 7 | 6 | 18.41 |
| 5/64 | .0781 | 2 | 3-3/4 | 12 | 4.77 | 1/4 | .2500 | 3-3/4 | 6-1/8 | 12 | 12.49 | 27/64 | .4219 | 4-5/8 | 7-1/4 | 6 | 22.50 |
| 3/32 | .0938 | 2-1/4 | 4-1/4 | 12 | 5.16 | 17/64 | .2656 | 3-7/8 | 6-1/4 | 12 | 13.68 | 7/16 | .4375 | 4-5/8 | 7-1/4 | 6 | 20.88 |
| 7/64 | .1094 | 2-1/2 | 4-5/8 | 12 | 7.17 | 9/32 | .2812 | 3-7/8 | 6-1/4 | 6 | 13.06 | 29/64 | .4531 | 4-3/4 | 7-1/2 | 6 | 25.56 |
| 1/8 | .1250 | 2-3/4 | 5-1/8 | 12 | 8.71 | 19/64 | .2969 | 4 | 6-3/8 | 6 | 14.09 | 15/32 | .4688 | 4-3/4 | 7-1/2 | 6 | 24.18 |
| 9/64 | .1406 | 3 | 5-3/8 | 12 | 9.59 | 5/16 | .3125 | 4 | 6-3/8 | 6 | 13.47 | 31/64 | .4844 | 4-3/4 | 7-3/4 | 6 | 27.51 |
| 5/32 | .1562 | 3 | 5-3/8 | 12 | 9.49 | 21/64 | .3281 | 4-1/8 | 6-1/2 | 6 | 15.51 | 1/2 | .5000 | 4-3/4 | 7-3/4 | 6 | 26.02 |
| 11/64 | .1719 | 3-3/8 | 5-3/4 | 12 | 11.26 | 11/32 | .3438 | 4-1/8 | 6-1/2 | 6 | 14.80 | 39/64 | .6094 | 4-7/8 | 8-3/4 | 1 | 54.50 |
| 3/16 | .1875 | 3-3/8 | 5-3/4 | 12 | 10.64 | 23/64 | .3594 | 4-1/4 | 6-3/4 | 6 | 17.67 | 11/16 | .6875 | 5-3/8 | 9-1/4 | 1 | 58.50 |
| 13/64 | .2031 | 3-5/8 | 6 | 12 | 12.20 | 3/8 | .3750 | 4-1/4 | 6-3/4 | 6 | 16.39 | | | | | | |

LETTER SIZES

| Size | Dec. Equiv. | Flute Length | Overall Length | Pkg. Qty. | Price Each | Size | Dec. Equiv. | Flute Length | Overall Length | Pkg. Qty. | Price Each | Size | Dec. Equiv. | Flute Length | Overall Length | Pkg. Qty. | Price Each |
|------|-------------|--------------|----------------|-----------|------------|------|-------------|--------------|----------------|-----------|------------|------|-------------|--------------|----------------|-----------|------------|
| A | .2340 | 3-3/4 | 6-1/8 | 12 | 19.60 | J | .2770 | 3-7/8 | 6-1/4 | 6 | 19.80 | S | .3480 | 4-1/4 | 6-3/4 | 6 | 25.90 |
| B | .2380 | 3-3/4 | 6-1/8 | 12 | 19.60 | K | .2810 | 3-7/8 | 6-1/4 | 6 | 21.35 | T | .3580 | 4-1/4 | 6-3/4 | 6 | 24.84 |
| C | .2420 | 3-3/4 | 6-1/8 | 12 | 19.60 | L | .2900 | 4 | 6-3/8 | 6 | 21.38 | U | .3680 | 4-1/4 | 6-3/4 | 6 | 24.84 |
| D | .2460 | 3-3/4 | 6-1/8 | 12 | 19.60 | M | .2950 | 4 | 6-3/8 | 6 | 21.38 | V | .3770 | 4-3/8 | 7 | 26.85 | |
| E | .2500 | 3-3/4 | 6-1/8 | 12 | 12.49 | N | .3020 | 4-1/8 | 6-1/2 | 6 | 22.79 | W | .3860 | 4-3/8 | 7 | 26.85 | |
| F | .2570 | 3-7/8 | 6-1/4 | 12 | 19.80 | O | .3160 | 4-1/8 | 6-1/2 | 6 | 22.79 | X | .3970 | 4-3/8 | 7 | 28.60 | |
| G | .2610 | 3-7/8 | 6-1/4 | 12 | 19.80 | P | .3230 | 4-1/8 | 6-1/2 | 6 | 22.79 | Y | .4040 | 4-3/8 | 7 | 28.60 | |
| H | .2660 | 3-7/8 | 6-1/4 | 12 | 20.50 | Q | .3320 | 4-1/8 | 6-1/2 | 6 | 22.79 | Z | .4130 | 4-5/8 | 7-1/4 | 6 | 28.60 |
| I | .2720 | 3-7/8 | 6-1/4 | 6 | 19.80 | R | .3390 | 4-1/8 | 6-1/2 | 6 | 22.79 | | | | | | |

WIRE GAUGE SIZES

| Size | Dec. Equiv. | Flute Length | Overall Length | Pkg. Qty. | Price Each | Size | Dec. Equiv. | Flute Length | Overall Length | Pkg. Qty. | Price Each | Size | Dec. Equiv. | Flute Length | Overall Length | Pkg. Qty. | Price Each |
|------|-------------|--------------|----------------|-----------|------------|------|-------------|--------------|----------------|-----------|------------|------|-------------|--------------|----------------|-----------|------------|
| 1 | .2280 | 3-3/4 | 6-1/8 | 12 | 13.60 | 21 | .1590 | 3-3/8 | 5-3/4 | 12 | 12.23 | 41 | .0960 | 2-1/2 | 4-5/8 | 12 | 7.65 |
| 2 | .2210 | 3-3/4 | 6-1/8 | 12 | 13.60 | 22 | .1570 | 3-3/8 | 5-3/4 | 12 | 12.04 | 42 | .0935 | 2-1/4 | 4-1/4 | 12 | 6.48 |
| 3 | .2130 | 3-5/8 | 6 | 12 | 13.13 | 23 | .1540 | 3 | 5-3/8 | 12 | 12.04 | 43 | .0890 | 2-1/4 | 4-1/4 | 12 | 6.48 |
| 4 | .2090 | 3-5/8 | 6 | 12 | 13.13 | 24 | .1520 | 3 | 5-3/8 | 12 | 12.04 | 44 | .0860 | 2-1/4 | 4-1/4 | 12 | 6.48 |
| 5 | .2055 | 3-5/8 | 6 | 12 | 13.13 | 25 | .1495 | 3 | 5-3/8 | 12 | 11.92 | 45 | .0820 | 2-1/4 | 4-1/4 | 12 | 6.48 |
| 6 | .2040 | 3-5/8 | 6 | 12 | 13.13 | 26 | .1470 | 3 | 5-3/8 | 12 | 11.92 | 46 | .0810 | 2-1/4 | 4-1/4 | 12 | 6.48 |
| 7 | .2010 | 3-5/8 | 6 | 12 | 13.13 | 27 | .1440 | 3 | 5-3/8 | 12 | 11.92 | 47 | .0785 | 2-1/4 | 4-1/4 | 12 | 6.48 |
| 8 | .1990 | 3-5/8 | 6 | 12 | 13.25 | 28 | .1405 | 3 | 5-3/8 | 12 | 11.92 | 48 | .0760 | 2 | 3-3/4 | 12 | 5.05 |
| 9 | .1960 | 3-5/8 | 6 | 12 | 13.25 | 29 | .1360 | 3 | 5-3/8 | 12 | 11.92 | 49 | .0730 | 2 | 3-3/4 | 12 | 5.05 |
| 10 | .1935 | 3-5/8 | 6 | 12 | 13.25 | 30 | .1285 | 3 | 5-3/8 | 12 | 11.92 | 50 | .0700 | 2 | 3-3/4 | 12 | 5.05 |
| 11 | .1910 | 3-5/8 | 6 | 12 | 13.25 | 31 | .1200 | 2-3/4 | 5-1/8 | 12 | 11.61 | 51 | .0670 | 2 | 3-3/4 | 12 | 5.05 |
| 12 | .1890 | 3-5/8 | 6 | 12 | 13.25 | 32 | .1160 | 2-3/4 | 5-1/8 | 12 | 11.61 | 52 | .0635 | 2 | 3-3/4 | 12 | 5.05 |
| 13 | .1850 | 3-3/8 | 5-3/4 | 12 | 13.07 | 33 | .1130 | 2-3/4 | 5-1/8 | 12 | 11.61 | 53 | .0595 | 1-3/4 | 3 | 12 | 5.10 |
| 14 | .1820 | 3-3/8 | 5-3/4 | 12 | 13.07 | 34 | .1110 | 2-3/4 | 5-1/8 | 12 | 11.61 | 54 | .0550 | 1-3/4 | 3 | 12 | 5.10 |
| 15 | .1800 | 3-3/8 | 5-3/4 | 12 | 13.07 | 35 | .1100 | 2-3/4 | 5-1/8 | 12 | 11.61 | 55 | .0520 | 1-3/4 | 3 | 12 | 5.10 |
| 16 | .1770 | 3-3/8 | 5-3/4 | 12 | 13.07 | 36 | .1065 | 2-1/2 | 4-5/8 | 12 | 8.73 | 56 | .0465 | 1-1/8 | 2-1/4 | 12 | 5.15 |
| 17 | .1730 | 3-3/8 | 5-3/4 | 12 | 13.07 | 37 | .1040 | 2-1/2 | 4-5/8 | 12 | 8.73 | 57 | .0430 | 1-1/8 | 2-1/4 | 12 | 5.15 |
| 18 | .1695 | 3-3/8 | 5-3/4 | 12 | 13.07 | 38 | .1015 | 2-1/2 | 4-5/8 | 12 | 8.73 | 58 | .0420 | 1-1/8 | 2-1/4 | 12 | 5.15 |
| 19 | .1660 | 3-3/8 | 5-3/4 | 12 | 12.24 | 39 | .0995 | 2-1/2 | 4-5/8 | 12 | 7.65 | 59 | .0410 | 1-1/8 | 2-1/4 | 12 | 5.17 |
| 20 | .1610 | 3-3/8 | 5-3/4 | 12 | 12.24 | 40 | .0980 | 2-1/2 | 4-5/8 | 12 | 7.65 | 60 | .0400 | 1-1/8 | 2-1/4 | 12 | 5.17 |

Tanged shanks available. Please inquire.

FAST SPIRAL DRILLS - SPECIAL LENGTHS

■ LIST NO. 400FS

| Size | Flute Length | Overall Length | Price Each | Size | Flute Length | Overall Length | Price Each | Size | Flute Length | Overall Length | Price Each | Size | Flute Length | Overall Length | Price Each | |
|------|--------------|----------------|------------|------|--------------|----------------|------------|-------|--------------|----------------|------------|------|--------------|----------------|------------|--|
| 69 | 5/8 | 3 | 4.30 | 37 | 2-1/4 | 7 | 7.50 | 21 | 3/4 | 1-1/2 | 1.00 | 11 | 7/8 | 1-7/8 | 1.48 | |
| 59 | 5/8 | 3 | 4.30 | 36 | 2-1/4 | 4 | 5.35 | 21 | 7/8 | 1-7/8 | 1.15 | 1 | 3-9/16 | 5-1/8 | 7.50 | |
| 59 | 2 | 5 | 4.85 | 30 | 1-3/8 | 3-3/8 | 3.45 | 20 | 7/8 | 1-7/8 | 1.15 | "F" | 1-1/4 | 3-3/4 | 2.40 | |
| 58 | 1/4 | 1-1/4 | .95 | 30 | 2 | 5 | 5.85 | 20 | 1-3/8 | 3-3/8 | 1.20 | 5/16 | 5-1/2 | 8 | 13.80 | |
| 53 | 2 | 5 | 4.85 | 30 | 2-1/2 | 3-1/2 | 3.90 | 11/64 | 7/8 | 2-1/2 | 1.35 | "O" | 1-1/4 | 1-7/8 | 2.58 | |
| 1/16 | 1 | 4 | 2.50 | 29 | 3/4 | 2-5/8 | 1.10 | 3/16 | 1-3/8 | 3-3/8 | 1.53 | "O" | 1-1/4 | 3-3/4 | 3.50 | |
| 46 | 2-1/4 | 3-5/8 | 2.95 | 29 | 1 | 1-5/8 | .95 | 3/16 | 1-1/2 | 4 | 1.48 | "P" | 7/8 | 1-7/8 | 2.50 | |
| 40 | 1-3/8 | 3-3/8 | 3.55 | 27 | 2 | 7 | 7.50 | 12 | 1 | 2 | 1.60 | "P" | 1-1/4 | 3-1/4 | 3.50 | |
| 40 | 2-1/2 | 3-1/2 | 4.25 | | | | | | | | | | | | | |

Subject to prior sale.



HIGH SPEED STEEL AND TITANIUM NITRIDE COATED

SCREW MACHINE LENGTH DRILLS

- ▶ LIST NO. 600 — HIGH SPEED STEEL, BRIGHT FINISH, 118° STANDARD POINT
- ▶ LIST NO. 600A — HIGH SPEED STEEL, OXIDE FINISH, 135° SPLIT POINT (NAS 907 TYPE C)
- ▶ LIST NO. 600T — TITANIUM NITRIDE COATED, 118° STANDARD POINT

Please order in package quantity.

SHANK DIAMETER

| Drill Size | Shank Diameter |
|-------------------------------|------------------------|
| Up to 1" inclusive | Same as Drill Diameter |
| Over 1 to 1-1/4 inclusive | 1 |
| Over 1-1/4 to 1-1/2 inclusive | 1-1/4 |
| Over 1-1/2 to 2-1/2 inclusive | 1-1/2 |



SET NO. 607G

13 Piece High Speed
Surface Treated 135° Split Point Set
1/16 - 1/4 x 64ths in Metal Index
SET PRICE — \$35.00

SET NO. 607GB

13 Piece High Speed
Bright Finish 118° Standard Point
1/16 - 1/4 x 64ths in Metal Index
SET PRICE — \$33.00



Screw machine drills are popular in the automotive and construction industries. Their short flute and overall length provide maximum rigidity. They are often used in screw machine set-ups where spindle clearance is limited.

SET NO. 607F
29 Piece High Speed
Surface Treated 135° Split Point Set
1/16 - 1/2 x 64ths in Metal Index
SET PRICE — \$155.00

SET NO. 607FB
29 Piece High Speed
Bright Finish 118° Standard Point
1/16 - 1/2 x 64ths in Metal Index
SET PRICE — \$154.00

FRACTIONAL SIZES

| Size | Dec. Equiv. | Flute Length | Overall Length | Pkg. Qty. | Price Each | | |
|-------|-------------|--------------|----------------|-----------|--------------------------|--------------------------|-------------------------------|
| | | | | | H.S. Bright List No. 600 | H.S. Oxide List No. 600A | H.S. TiN Coated List No. 600T |
| 3/64 | .0469 | 1/2 | 1-3/8 | 12 | 1.72 | 1.73* | 3.85 |
| 1/16 | .0625 | 5/8 | 1-5/8 | 12 | 1.60 | 1.68 | 3.81 |
| 5/64 | .0781 | 11/16 | 1-11/16 | 12 | 1.60 | 1.72 | 3.81 |
| 3/32 | .0938 | 3/4 | 1-3/4 | 12 | 1.60 | 1.71 | 3.81 |
| 7/64 | .1094 | 13/16 | 1-13/16 | 12 | 1.60 | 1.72 | 3.81 |
| 1/8 | .1250 | 7/8 | 1-7/8 | 12 | 1.60 | 1.68 | 3.81 |
| 9/64 | .1406 | 15/16 | 1-15/16 | 12 | 1.60 | 1.72 | 5.69 |
| 5/32 | .1562 | 1 | 2-1/16 | 12 | 1.83 | 1.92 | 5.98 |
| 11/64 | .1719 | 1-1/16 | 2-1/8 | 12 | 1.97 | 2.04 | 6.16 |
| 3/16 | .1875 | 1-1/8 | 2-3/16 | 12 | 2.02 | 2.20 | 6.24 |
| 13/64 | .2031 | 1-3/16 | 2-1/4 | 12 | 2.25 | 2.33 | 6.48 |
| 7/32 | .2188 | 1-1/4 | 2-3/8 | 12 | 2.62 | 2.78 | 6.93 |
| 15/64 | .2344 | 1-5/16 | 2-7/16 | 12 | 2.72 | 2.84 | 7.15 |
| 1/4 | .2500 | 1-3/8 | 2-1/2 | 12 | 3.18 | 3.18 | 7.22 |
| 17/64 | .2656 | 1-7/16 | 2-5/8 | 12 | 3.32 | 3.61 | 10.35 |
| 9/32 | .2812 | 1-1/2 | 2-11/16 | 6 | 3.52 | 3.86 | 10.45 |
| 19/64 | .2969 | 1-9/16 | 2-3/4 | 6 | 3.85 | 4.27 | 11.00 |
| 5/16 | .3125 | 1-5/8 | 2-13/16 | 6 | 4.15 | 4.57 | 11.25 |
| 21/64 | .3281 | 1-11/16 | 2-15/16 | 6 | 4.59 | 5.08 | 15.07 |
| 11/32 | .3438 | 1-11/16 | 3 | 6 | 5.15 | 5.69 | 15.55 |
| 23/64 | .3594 | 1-3/4 | 3-1/16 | 6 | 6.02 | 6.59 | 16.81 |
| 3/8 | .3750 | 1-13/16 | 3-1/8 | 6 | 6.25 | 6.87 | 16.93 |
| 25/64 | .3906 | 1-7/8 | 3-1/4 | 6 | 6.96 | 7.78 | 20.08 |
| 13/32 | .4062 | 1-15/16 | 3-5/16 | 6 | 7.27 | 8.00 | 20.24 |
| 27/64 | .4219 | 2 | 3-3/8 | 6 | 7.99 | 8.89 | 21.39 |
| 7/16 | .4375 | 2-1/16 | 3-7/16 | 6 | 8.10 | 8.92 | 21.25 |
| 29/64 | .4531 | 2-1/8 | 3-9/16 | 6 | 9.74 | 10.70 | 24.02 |
| 15/32 | .4688 | 2-1/8 | 3-5/8 | 6 | 10.17 | 11.44 | 24.36 |
| 31/64 | .4844 | 2-3/16 | 3-11/16 | 6 | 10.68 | 11.69 | 25.22 |
| 1/2 | .5000 | 2-1/4 | 3-3/4 | 6 | 10.49 | 11.46 | 24.76 |
| 33/64 | .5156 | 2-3/8 | 3-7/8 | 1 | 23.49 | — | — |
| 17/32 | .5312 | 2-3/8 | 3-7/8 | 1 | 24.14 | 28.80 | — |
| 35/64 | .5469 | 2-1/2 | 4 | 1 | 25.62 | — | — |
| 9/16 | .5625 | 2-1/2 | 4 | 1 | 25.15 | 29.47 | — |
| 37/64 | .5781 | 2-5/8 | 4-1/8 | 1 | 29.35 | — | — |
| 19/32 | .5938 | 2-5/8 | 4-1/8 | 1 | 28.79 | — | — |
| 39/64 | .6094 | 2-3/4 | 4-1/4 | 1 | 29.58 | — | — |
| 5/8 | .6250 | 2-3/4 | 4-1/4 | 1 | 29.06 | 35.90 | — |
| 41/64 | .6406 | 2-7/8 | 4-1/2 | 1 | 33.99 | — | — |
| 21/32 | .6562 | 2-7/8 | 4-1/2 | 1 | 33.37 | — | — |
| 43/64 | .6719 | 2-7/8 | 4-5/8 | 1 | 37.69 | — | — |
| 11/16 | .6875 | 2-7/8 | 4-5/8 | 1 | 37.00 | — | — |
| 45/64 | .7031 | 3 | 4-3/4 | 1 | 42.03 | — | — |
| 23/32 | .7188 | 3 | 4-3/4 | 1 | 40.53 | — | — |
| 47/64 | .7344 | 3-1/8 | 5 | 1 | 44.37 | — | — |
| 3/4 | .7500 | 3-1/8 | 5 | 1 | 42.78 | — | — |
| 49/64 | .7656 | 3-1/4 | 5-1/8 | 1 | 48.85 | — | — |
| 25/32 | .7812 | 3-1/4 | 5-1/8 | 1 | 47.09 | — | — |
| 51/64 | .7969 | 3-3/8 | 5-1/4 | 1 | 51.41 | — | — |
| 13/16 | .8125 | 3-3/8 | 5-1/4 | 1 | 49.58 | — | — |
| 53/64 | .8281 | 3-1/2 | 5-3/8 | 1 | 54.44 | — | — |
| 27/32 | .8438 | 3-1/2 | 5-3/8 | 1 | 52.49 | — | — |
| 55/64 | .8594 | 3-1/2 | 5-1/2 | 1 | 56.38 | — | — |
| 7/8 | .8750 | 3-1/2 | 5-1/2 | 1 | 54.37 | — | — |
| 57/64 | .8906 | 3-5/8 | 5-5/8 | 1 | 58.54 | — | — |
| 29/32 | .9062 | 3-5/8 | 5-5/8 | 1 | 56.45 | — | — |
| 59/64 | .9219 | 3-3/4 | 5-3/4 | 1 | 64.53 | — | — |
| 15/16 | .9375 | 3-3/4 | 5-3/4 | 1 | 62.22 | — | — |
| 61/64 | .9531 | 3-7/8 | 5-7/8 | 1 | 70.18 | — | — |

| Size | Dec. Equiv. | Flute Length | Overall Length | Pkg. Qty. | Price Each | |
|---------|-------------|--------------|----------------|-----------|--------------------------|--------------------------|
| | | | | | H.S. Bright List No. 600 | H.S. Oxide List No. 600A |
| 31/32 | .9688 | 3-7/8 | 5-7/8 | 1 | 67.67 | — |
| 63/64 | .9844 | 4 | 6 | 1 | 72.82 | — |
| 1 | 1.0000 | 4 | 6 | 1 | 70.21 | — |
| 1-1/64 | 1.0156 | 4 | 6-1/4 | 1 | 113.20 | — |
| 1-3/32 | 1.0312 | 4 | 6-1/4 | 1 | 103.40 | — |
| 1-3/64 | 1.0469 | 4 | 6-1/4 | 1 | 120.75 | — |
| 1-1/16 | 1.0625 | 4 | 6-1/4 | 1 | 87.59 | — |
| 1-5/64 | 1.0781 | 4 | 6-3/8 | 1 | 126.65 | — |
| 1-3/32 | 1.0938 | 4 | 6-3/8 | 1 | 114.60 | — |
| 1-7/64 | 1.1094 | 4 | 6-3/8 | 1 | 136.98 | — |
| 1-1/8 | 1.1250 | 4 | 6-3/8 | 1 | 99.24 | — |
| 1-9/64 | 1.1406 | 4 | 6-5/8 | 1 | 147.20 | — |
| 1-5/32 | 1.1562 | 4-1/4 | 6-5/8 | 1 | 119.60 | — |
| 1-11/64 | 1.1719 | 4-1/4 | 6-5/8 | 1 | 155.80 | — |
| 1-3/16 | 1.1875 | 4-1/4 | 6-5/8 | 1 | 102.94 | — |
| 1-13/64 | 1.2031 | 4-3/8 | 6-3/4 | 1 | 165.40 | — |
| 1-7/32 | 1.2188 | 4-3/8 | 6-3/4 | 1 | 128.66 | — |
| 1-15/64 | 1.2344 | 4-3/8 | 6-3/4 | 1 | 172.70 | — |
| 1-1/4 | 1.2500 | 4-3/8 | 6-3/4 | 1 | 115.12 | — |
| 1-17/64 | 1.2656 | 4-3/8 | 7 | 1 | 185.20 | — |
| 1-9/32 | 1.2812 | 4-3/8 | 7 | 1 | 169.69 | — |
| 1-19/64 | 1.2969 | 4-3/8 | 7 | 1 | 199.50 | — |
| 1-5/16 | 1.3125 | 4-3/8 | 7 | 1 | 153.59 | — |
| 1-21/64 | 1.3281 | 4-1/2 | 7-1/8 | 1 | 206.28 | — |
| 1-11/32 | 1.3438 | 4-1/2 | 7-1/8 | 1 | 179.92 | — |
| 1-23/64 | 1.3594 | 4-1/2 | 7-1/8 | 1 | 211.14 | — |
| 1-3/8 | 1.3750 | 4-1/2 | 7-1/8 | 1 | 163.73 | — |
| 1-13/32 | 1.4062 | 4-3/4 | 7-3/8 | 1 | 189.65 | — |
| 1-27/64 | 1.4219 | 4-3/4 | 7-3/8 | 1 | 219.41 | — |
| 1-7/16 | 1.4375 | 4-3/4 | 7-3/8 | 1 | 175.55 | — |
| 1-29/64 | 1.4531 | 4-7/8 | 7-1/2 | 1 | 225.89 | — |
| 1-15/32 | 1.4688 | 4-7/8 | 7-1/2 | 1 | 199.90 | — |
| 1-31/64 | 1.4844 | 4-7/8 | 7-1/2 | 1 | 235.12 | — |
| 1-1/2 | 1.5000 | 4-7/8 | 7-1/2 | 1 | 185.07 | — |
| 1-17/32 | 1.5312 | 4-7/8 | 7-3/4 | 1 | 229.40 | — |
| 1-9/16 | 1.5625 | 4-7/8 | 7-3/4 | 1 | 209.10 | — |
| 1-19/32 | 1.5938 | 4-7/8 | 7-3/4 | 1 | 259.96 | — |
| 1-5/8 | 1.6250 | 4-7/8 | 7-3/4 | 1 | 234.62 | — |
| 1-21/32 | 1.6562 | 5-1/8 | 8 | 1 | 298.17 | — |
| 1-11/16 | 1.6875 | 5-1/8 | 8 | 1 | 268.26 | — |
| 1-23/32 | 1.7188 | 5-1/8 | 8 | 1 | 307.70 | — |
| 1-3/4 | 1.7500 | 5-1/8 | 8 | 1 | 277.91 | — |
| 1-25/32 | 1.7812 | 5-3/8 | 8-1/4 | 1 | 335.72 | — |
| 1-13/16 | 1.8125 | 5-3/8 | 8-1/4 | 1 | 304.91 | — |
| 1-27/32 | 1.8438 | 5-3/8 | 8-1/4 | 1 | 348.05 | — |
| 1-7/8 | 1.8750 | 5-3/8 | 8-1/4 | 1 | 313.59 | — |
| 1-29/32 | 1.9062 | 5-5/8 | 8-1/2 | 1 | 369.12 | — |
| 1-15/16 | 1.9375 | 5-5/8 | 8-1/2 | 1 | 332.64 | — |
| 1-31/32 | 1.9688 | 5-5/8 | 8-1/2 | 1 | 375.90 | — |
| 2 | 2.0000 | 5-5/8 | 8-1/2 | 1 | 349.52 | — |
| 2-1/16 | 2.0625 | 5-5/8 | 8-1/2 | 1 | 397.80 | — |
| 2-1/8 | 2.1250 | 5-5/8 | 8-1/2 | 1 | 419.30 | — |
| 2-3/16 | 2.1875 | 5-5/8 | 8-1/2 | 1 | 442.00 | — |
| 2-1/4 | 2.2500 | 5-5/8 | 8-1/2 | 1 | 469.63 | — |
| 2-5/16 | 2.3125 | 5-5/8 | 8-1/2 | 1 | 496.00 | — |
| 2-3/8 | 2.3750 | 5-5/8 | 8-1/2 | 1 | 509.70 | — |
| 2-7/16 | 2.4375 | 5-5/8 | 8-1/2 | 1 | 625.60 | — |
| 2-1/2 | 2.5000 | 5-5/8 | 8-1/2 | 1 | 675.50 | — |

* Sizes under 1/16 furnished with 135° point — NOT split.

SCREW MACHINE LENGTH DRILLS



- ▶ LIST NO. 600 — HIGH SPEED STEEL, BRIGHT FINISH, 118° STANDARD POINT
- ▶ LIST NO. 600A — HIGH SPEED STEEL, OXIDE FINISH, 135° SPLIT POINT (NAS 907 TYPE C)
- ▶ LIST NO. 600T — TITANIUM NITRIDE COATED, 118° STANDARD POINT

Please order in package quantity.



SET NO. 607W
60 Piece High Speed
Surface Treated
Screw Machine Set
No. 1-60 Set with Metal Index
SET PRICE — \$117.00

SET NO. 607WB
60 Piece Bright Finish
Screw Machine Set
No. 1-60 Set with Metal Index
SET PRICE — \$110.00

WIRE GAUGE SIZES

12 drills per package

| Size | Dec. Equiv. | Flute Length | Overall Length | Price Each | | |
|------|-------------|--------------|----------------|--------------------------|--------------------------|-------------------------------|
| | | | | H.S. Bright List No. 600 | H.S. Oxide List No. 600A | H.S. TiN Coated List No. 600T |
| 1 | .2280 | 1-5/16 | 2-7/16 | 2.82 | 3.01 | 7.21 |
| 2 | .2210 | 1-5/16 | 2-7/16 | 2.82 | 3.01 | 7.21 |
| 3 | .2130 | 1-1/4 | 2-3/8 | 2.67 | 2.81 | 7.02 |
| 4 | .2090 | 1-1/4 | 2-3/8 | 2.67 | 2.81 | 7.02 |
| 5 | .2055 | 1-1/4 | 2-3/8 | 2.67 | 2.81 | 7.02 |
| 6 | .2040 | 1-1/4 | 2-3/8 | 2.67 | 2.81 | 7.02 |
| 7 | .2010 | 1-3/16 | 2-1/4 | 2.22 | 2.35 | 6.45 |
| 8 | .1990 | 1-3/16 | 2-1/4 | 2.22 | 2.35 | 6.45 |
| 9 | .1960 | 1-3/16 | 2-1/4 | 2.22 | 2.35 | 6.45 |
| 10 | .1935 | 1-3/16 | 2-1/4 | 2.22 | 2.35 | 6.45 |
| 11 | .1910 | 1-3/16 | 2-1/4 | 2.22 | 2.35 | 6.45 |
| 12 | .1890 | 1-3/16 | 2-1/4 | 2.22 | 2.35 | 6.45 |
| 13 | .1850 | 1-1/8 | 2-3/16 | 2.22 | 2.35 | 6.45 |
| 14 | .1820 | 1-1/8 | 2-3/16 | 2.22 | 2.35 | 6.45 |
| 15 | .1800 | 1-1/8 | 2-3/16 | 2.22 | 2.35 | 6.45 |
| 16 | .1770 | 1-1/8 | 2-3/16 | 2.22 | 2.35 | 6.45 |
| 17 | .1730 | 1-1/8 | 2-3/16 | 2.22 | 2.35 | 6.45 |
| 18 | .1695 | 1-1/16 | 2-1/8 | 1.91 | 1.97 | 6.09 |
| 19 | .1660 | 1-1/16 | 2-1/8 | 1.91 | 1.97 | 6.09 |
| 20 | .1610 | 1-1/16 | 2-1/8 | 1.91 | 1.97 | 6.09 |
| 21 | .1590 | 1-1/16 | 2-1/8 | 1.83 | 1.90 | 5.99 |
| 22 | .1570 | 1-1/16 | 2-1/8 | 1.83 | 1.90 | 5.99 |
| 23 | .1540 | 1 | 2-1/16 | 1.83 | 1.90 | 5.99 |
| 24 | .1520 | 1 | 2-1/16 | 1.83 | 1.90 | 5.99 |
| 25 | .1495 | 1 | 2-1/16 | 1.78 | 1.86 | 5.89 |
| 26 | .1470 | 1 | 2-1/16 | 1.78 | 1.86 | 5.89 |
| 27 | .1440 | 1 | 2-1/16 | 1.57 | 1.86 | 5.89 |
| 28 | .1405 | 15/16 | 1-15/16 | 1.57 | 1.69 | 5.68 |
| 29 | .1360 | 15/16 | 1-15/16 | 1.57 | 1.69 | 5.68 |
| 30 | .1285 | 15/16 | 1-15/16 | 1.57 | 1.69 | 5.68 |
| 31 | .1200 | 7/8 | 1-7/8 | 1.57 | 1.69 | 3.77 |

| Size | Dec. Equiv. | Flute Length | Overall Length | Price Each | | |
|------|-------------|--------------|----------------|--------------------------|--------------------------|-------------------------------|
| | | | | H.S. Bright List No. 600 | H.S. Oxide List No. 600A | H.S. TiN Coated List No. 600T |
| 32 | .1160 | 7/8 | 1-7/8 | 1.57 | 1.69 | 3.77 |
| 33 | .1130 | 7/8 | 1-7/8 | 1.57 | 1.69 | 3.77 |
| 34 | .1110 | 7/8 | 1-7/8 | 1.57 | 1.69 | 3.77 |
| 35 | .1100 | 7/8 | 1-7/8 | 1.57 | 1.69 | 3.77 |
| 36 | .1065 | 13/16 | 1-13/16 | 1.57 | 1.69 | 3.77 |
| 37 | .1040 | 13/16 | 1-13/16 | 1.57 | 1.69 | 3.77 |
| 38 | .1015 | 13/16 | 1-13/16 | 1.57 | 1.69 | 3.77 |
| 39 | .0995 | 13/16 | 1-13/16 | 1.57 | 1.69 | 3.77 |
| 40 | .0980 | 13/16 | 1-13/16 | 1.57 | 1.69 | 3.77 |
| 41 | .0960 | 13/16 | 1-13/16 | 1.57 | 1.69 | 3.77 |
| 42 | .0935 | 3/4 | 1-3/4 | 1.57 | 1.69 | 3.77 |
| 43 | .0890 | 3/4 | 1-3/4 | 1.57 | 1.69 | 3.77 |
| 44 | .0860 | 3/4 | 1-3/4 | 1.57 | 1.69 | 3.77 |
| 45 | .0820 | 3/4 | 1-3/4 | 1.57 | 1.69 | 3.77 |
| 46 | .0810 | 3/4 | 1-3/4 | 1.57 | 1.69 | 3.77 |
| 47 | .0785 | 3/4 | 1-3/4 | 1.57 | 1.69 | 3.77 |
| 48 | .0760 | 11/16 | 1-11/16 | 1.57 | 1.69 | 3.77 |
| 49 | .0730 | 11/16 | 1-11/16 | 1.57 | 1.69 | 3.77 |
| 50 | .0700 | 11/16 | 1-11/16 | 1.57 | 1.69 | 3.77 |
| 51 | .0670 | 11/16 | 1-11/16 | 1.57 | 1.69 | 3.77 |
| 52 | .0635 | 11/16 | 1-11/16 | 1.57 | 1.69 | 3.77 |
| 53 | .0595 | 5/8 | 1-5/8 | 1.57 | 1.69* | 3.77 |
| 54 | .0550 | 5/8 | 1-5/8 | 1.57 | 1.69* | 3.77 |
| 55 | .0520 | 5/8 | 1-5/8 | 1.57 | 1.69* | 3.77 |
| 56 | .0465 | 1/2 | 1-3/8 | 1.57 | 1.69* | 3.77 |
| 57 | .0430 | 1/2 | 1-3/8 | 1.57 | 1.69* | 3.77 |
| 58 | .0420 | 1/2 | 1-3/8 | 1.57 | 1.69* | 3.77 |
| 59 | .0410 | 1/2 | 1-3/8 | 1.57 | 1.69* | 3.77 |
| 60 | .0400 | 1/2 | 1-3/8 | 1.57 | 1.69* | 3.77 |
| 61 | .0390 | 1/2 | 1-1/4 | 1.70 | — | 3.92 |

*Sizes 53 - 60 are furnished with 135° — NOT Split.

LETTER SIZES

| Size | Dec. Equiv. | Flute Length | Overall Length | Pkg. Qty. | Price Each | |
|------|-------------|--------------|----------------|-----------|--------------------------|--------------------------|
| | | | | | H.S. Bright List No. 600 | H.S. Oxide List No. 600A |
| A | .2340 | 1-5/16 | 2-7/16 | 12 | 3.39 | 3.48 |
| B | .2380 | 1-3/8 | 2-1/2 | 12 | 3.39 | 3.48 |
| C | .2420 | 1-3/8 | 2-1/2 | 12 | 3.39 | 3.48 |
| D | .2460 | 1-3/8 | 2-1/2 | 12 | 3.39 | 3.48 |
| E | .2500 | 1-3/8 | 2-1/2 | 12 | 3.18 | 3.18 |
| F | .2570 | 1-7/16 | 2-5/8 | 12 | 3.71 | 3.87 |
| G | .2610 | 1-7/16 | 2-5/8 | 12 | 3.92 | 4.09 |
| H | .2660 | 1-1/2 | 2-11/16 | 12 | 3.92 | 4.09 |
| I | .2720 | 1-1/2 | 2-11/16 | 6 | 3.92 | 4.09 |
| J | .2770 | 1-1/2 | 2-11/16 | 6 | 4.26 | 4.39 |
| K | .2810 | 1-1/2 | 2-11/16 | 6 | 4.55 | 4.73 |
| L | .2900 | 1-9/16 | 2-3/4 | 6 | 4.55 | 4.73 |
| M | .2950 | 1-9/16 | 2-3/4 | 6 | 4.97 | 5.16 |

| Size | Dec. Equiv. | Flute Length | Overall Length | Pkg. Qty. | Price Each | |
|------|-------------|--------------|----------------|-----------|--------------------------|--------------------------|
| | | | | | H.S. Bright List No. 600 | H.S. Oxide List No. 600A |
| N | .3020 | 1-5/8 | 2-13/16 | 6 | 4.97 | 5.16 |
| O | .3160 | 1-11/16 | 2-15/16 | 6 | 5.10 | 5.21 |
| P | .3230 | 1-11/16 | 2-15/16 | 6 | 5.61 | 5.82 |
| Q | .3320 | 1-11/16 | 3 | 6 | 5.61 | 5.82 |
| R | .3390 | 1-11/16 | 3 | 6 | 5.61 | 5.91 |
| S | .3480 | 1-3/4 | 3-1/16 | 6 | 6.54 | 6.71 |
| T | .3580 | 1-3/4 | 3-1/16 | 6 | 7.55 | 7.78 |
| U | .3680 | 1-13/16 | 3-1/8 | 6 | 7.55 | 7.78 |
| V | .3770 | 1-7/8 | 3-1/4 | 6 | 7.96 | 8.31 |
| W | .3860 | 1-7/8 | 3-1/4 | 6 | 8.35 | 8.74 |
| X | .3970 | 1-15/16 | 3-5/16 | 6 | 9.73 | 10.13 |
| Y | .4040 | 1-15/16 | 3-5/16 | 6 | 11.54 | 11.99 |
| Z | .4130 | 2 | 3-3/8 | 6 | 11.54 | 11.99 |

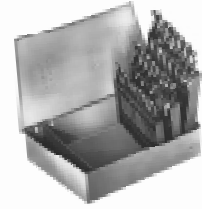


COBALT

COBALT SCREW MACHINE LENGTH DRILLS

● LIST NO. 600C — HEAVY DUTY, 135° SPLIT POINT

Please order in package quantity.



SET NO. 607CG

13 Piece Cobalt
Bronze 135° Split Point Set
1/16 - 1/4 x 64ths in Metal Index
SET PRICE — \$49.00

The short flute length and overall length provides maximum rigidity drilling in stainless and other tough alloys, castings and forgings.

SET NO. 607CF

29 Piece Cobalt
Bronze 135° Split Point Set
1/16 - 1/2 x 64ths in Metal Index
SET PRICE — \$255.00

FRACTIONAL SIZES

| Size | Dec. Equiv. | Flute Length | Overall Length | Pkg. Qty. | Price Each |
|-------|-------------|--------------|----------------|-----------|------------|
| 3/64 | .0469 | 1/2 | 1-3/8 | 12 | 3.23 |
| 1/16 | .0625 | 5/8 | 1-5/8 | 12 | 2.00 |
| 5/64 | .0781 | 11/16 | 1-11/16 | 12 | 2.02 |
| 3/32 | .0938 | 3/4 | 1-3/4 | 12 | 2.02 |
| 7/64 | .1094 | 13/16 | 1-13/16 | 12 | 2.25 |
| 1/8 | .1250 | 7/8 | 1-7/8 | 12 | 2.60 |
| 9/64 | .1406 | 15/16 | 1-15/16 | 12 | 2.65 |
| 5/32 | .1562 | 1 | 2-1/16 | 12 | 2.85 |
| 11/64 | .1719 | 1-1/16 | 2-1/8 | 12 | 3.25 |
| 3/16 | .1875 | 1-1/8 | 2-3/16 | 12 | 3.80 |
| 13/64 | .2031 | 1-3/16 | 2-1/4 | 12 | 4.40 |
| 7/32 | .2188 | 1-1/4 | 2-3/8 | 12 | 4.80 |
| 15/64 | .2344 | 1-5/16 | 2-7/16 | 12 | 5.30 |
| 1/4 | .2500 | 1-3/8 | 2-1/2 | 12 | 6.00 |
| 17/64 | .2656 | 1-7/16 | 2-5/8 | 12 | 6.30 |
| 9/32 | .2812 | 1-1/2 | 2-11/16 | 6 | 3.65 |
| 19/64 | .2969 | 1-9/16 | 2-3/4 | 6 | 7.95 |
| 5/16 | .3125 | 1-5/8 | 2-13/16 | 6 | 8.30 |
| 21/64 | .3281 | 1-11/16 | 2-15/16 | 6 | 9.45 |
| 11/32 | .3438 | 1-11/16 | 3 | 6 | 9.95 |
| 23/64 | .3594 | 1-3/4 | 3-1/16 | 6 | 11.75 |

| Size | Dec. Equiv. | Flute Length | Overall Length | Pkg. Qty. | Price Each |
|-------|-------------|--------------|----------------|-----------|------------|
| 3/8 | .3750 | 1-13/16 | 3-1/8 | 6 | 11.45 |
| 25/64 | .3906 | 1-7/8 | 3-1/4 | 6 | 13.50 |
| 13/32 | .4062 | 1-15/16 | 3-5/16 | 6 | 13.52 |
| 27/64 | .4219 | 2 | 3-3/8 | 6 | 15.40 |
| 7/16 | .4375 | 2-1/16 | 3-7/16 | 6 | 15.40 |
| 29/64 | .4531 | 2-1/8 | 3-9/16 | 6 | 19.00 |
| 15/32 | .4688 | 2-1/8 | 3-5/8 | 6 | 18.50 |
| 31/64 | .4844 | 2-3/16 | 3-11/16 | 6 | 19.00 |
| 1/2 | .5000 | 2-1/4 | 3-3/4 | 6 | 18.50 |
| 33/64 | .5156 | 2-3/8 | 3-7/8 | 1 | 47.35 |
| 17/32 | .5312 | 2-3/8 | 3-7/8 | 1 | 47.75 |
| 35/64 | .5469 | 2-1/2 | 4 | 1 | 51.40 |
| 9/16 | .5625 | 2-1/2 | 4 | 1 | 49.60 |
| 37/64 | .5781 | 2-5/8 | 4-1/8 | 1 | 58.90 |
| 19/32 | .5938 | 2-5/8 | 4-1/8 | 1 | 56.80 |
| 39/64 | .6094 | 2-3/4 | 4-1/4 | 1 | 59.50 |
| 5/8 | .6250 | 2-3/4 | 4-1/4 | 1 | 57.40 |
| 41/64 | .6406 | 2-7/8 | 4-1/2 | 1 | 68.35 |
| 21/32 | .6562 | 2-7/8 | 4-1/2 | 1 | 65.90 |
| 43/64 | .6719 | 2-7/8 | 4-5/8 | 1 | 75.70 |
| 11/16 | .6875 | 2-7/8 | 4-5/8 | 1 | 73.00 |

| Size | Dec. Equiv. | Flute Length | Overall Length | Pkg. Qty. | Price Each |
|-------|-------------|--------------|----------------|-----------|------------|
| 45/64 | .7031 | 3 | 4-3/4 | 1 | 82.20 |
| 23/32 | .7188 | 3 | 4-3/4 | 1 | 79.25 |
| 47/64 | .7344 | 3-1/8 | 5 | 1 | 86.75 |
| 3/4 | .7500 | 3-1/8 | 5 | 1 | 83.65 |
| 49/64 | .7656 | 3-1/4 | 5-1/8 | 1 | 92.40 |
| 25/32 | .7812 | 3-1/4 | 5-1/8 | 1 | 92.40 |
| 51/64 | .7969 | 3-3/8 | 5-1/4 | 1 | 98.00 |
| 13/16 | .8125 | 3-3/8 | 5-1/4 | 1 | 98.00 |
| 53/64 | .8281 | 3-1/2 | 5-3/8 | 1 | 105.00 |
| 27/32 | .8438 | 3-1/2 | 5-3/8 | 1 | 105.00 |
| 55/64 | .8594 | 3-1/2 | 5-1/2 | 1 | 107.38 |
| 7/8 | .8750 | 3-1/2 | 5-1/2 | 1 | 107.38 |
| 57/64 | .8906 | 3-5/8 | 5-5/8 | 1 | 111.65 |
| 29/32 | .9062 | 3-5/8 | 5-5/8 | 1 | 111.65 |
| 59/64 | .9219 | 3-3/4 | 5-3/4 | 1 | 123.06 |
| 15/16 | .9375 | 3-3/4 | 5-3/4 | 1 | 123.06 |
| 61/64 | .9531 | 3-7/8 | 5-7/8 | 1 | 133.70 |
| 31/32 | .9688 | 3-7/8 | 5-7/8 | 1 | 133.70 |
| 63/64 | .9844 | 4 | 6 | 1 | 139.86 |
| 1 | 1.0000 | 4 | 6 | 1 | 139.86 |
| 1-3/8 | 1.3750 | 4-1/2 | 7-1/8 | 1 | 324.50 |

*Under 1/16 furnished with 135° point — NOT SPLIT.

Cobalt sizes over 1/2 furnished with notched point.

LETTER SIZES

| Size | Dec. Equiv. | Flute Length | Overall Length | Pkg. Qty. | Price Each |
|------|-------------|--------------|----------------|-----------|------------|
| A | .2340 | 1-5/16 | 2-7/16 | 12 | 6.25 |
| B | .2380 | 1-3/8 | 2-1/2 | 12 | 6.60 |
| C | .2420 | 1-3/8 | 2-1/2 | 12 | 6.60 |
| D | .2460 | 1-3/8 | 2-1/2 | 12 | 6.60 |
| E | .2500 | 1-3/8 | 2-1/2 | 12 | 6.00 |
| F | .2570 | 1-7/16 | 2-5/8 | 12 | 7.00 |
| G | .2610 | 1-7/16 | 2-5/8 | 12 | 7.00 |
| H | .2660 | 1-1/2 | 2-11/16 | 12 | 7.40 |
| I | .2720 | 1-1/2 | 2-11/16 | 6 | 7.40 |

| Size | Dec. Equiv. | Flute Length | Overall Length | Pkg. Qty. | Price Each |
|------|-------------|--------------|----------------|-----------|------------|
| J | .2770 | 1-1/2 | 2-11/16 | 6 | 7.40 |
| K | .2810 | 1-1/2 | 2-11/16 | 6 | 7.40 |
| L | .2900 | 1-9/16 | 2-3/4 | 6 | 8.80 |
| M | .2950 | 1-9/16 | 2-3/4 | 6 | 8.80 |
| N | .3020 | 1-5/8 | 2-13/16 | 6 | 9.40 |
| O | .3160 | 1-11/16 | 2-15/16 | 6 | 10.50 |
| P | .3230 | 1-11/16 | 2-15/16 | 6 | 10.50 |
| Q | .3320 | 1-11/16 | 3 | 6 | 11.30 |
| R | .3390 | 1-11/16 | 3 | 6 | 11.30 |

| Size | Dec. Equiv. | Flute Length | Overall Length | Pkg. Qty. | Price Each |
|------|-------------|--------------|----------------|-----------|------------|
| S | .3480 | 1-3/4 | 3-1/16 | 6 | 14.10 |
| T | .3580 | 1-3/4 | 3-1/16 | 6 | 14.10 |
| U | .3680 | 1-13/16 | 3-1/8 | 6 | 14.10 |
| V | .3770 | 1-7/8 | 3-1/4 | 6 | 15.65 |
| W | .3860 | 1-7/8 | 3-1/4 | 6 | 15.65 |
| X | .3970 | 1-15/16 | 3-5/16 | 6 | 15.65 |
| Y | .4040 | 1-15/16 | 3-5/16 | 6 | 15.65 |
| Z | .4130 | 2 | 3-3/8 | 6 | 18.00 |

WIRE GAUGE SIZES

12 drills per package

| Size | Decimal Equiv. | Flute Length | Overall Length | Price Each |
|------|----------------|--------------|----------------|------------|
| 1 | .2280 | 1-5/16 | 2-7/16 | 5.90 |
| 2 | .2210 | 1-5/16 | 2-7/16 | 5.90 |
| 3 | .2130 | 1-1/4 | 2-3/8 | 5.90 |
| 4 | .2090 | 1-1/4 | 2-3/8 | 5.30 |
| 5 | .2055 | 1-1/4 | 2-3/8 | 5.30 |
| 6 | .2040 | 1-1/4 | 2-3/8 | 5.30 |
| 7 | .2010 | 1-3/16 | 2-1/4 | 4.15 |
| 8 | .1990 | 1-3/16 | 2-1/4 | 4.10 |
| 9 | .1960 | 1-3/16 | 2-1/4 | 4.10 |
| 10 | .1935 | 1-3/16 | 2-1/4 | 4.10 |
| 11 | .1910 | 1-3/16 | 2-1/4 | 4.05 |
| 12 | .1890 | 1-3/16 | 2-1/4 | 4.05 |
| 13 | .1850 | 1-1/8 | 2-3/16 | 4.00 |
| 14 | .1820 | 1-1/8 | 2-3/16 | 4.00 |
| 15 | .1800 | 1-1/8 | 2-3/16 | 4.00 |
| 16 | .1770 | 1-1/8 | 2-3/16 | 3.95 |
| 17 | .1730 | 1-1/8 | 2-3/16 | 3.82 |
| 18 | .1695 | 1-1/16 | 2-1/8 | 3.23 |
| 19 | .1660 | 1-1/16 | 2-1/8 | 3.09 |
| 20 | .1610 | 1-1/16 | 2-1/8 | 3.09 |

| Size | Decimal Equiv. | Flute Length | Overall Length | Price Each |
|------|----------------|--------------|----------------|------------|
| 21 | .1590 | 1-1/16 | 2-1/8 | 3.09 |
| 22 | .1570 | 1-1/16 | 2-1/8 | 3.09 |
| 23 | .1540 | 1 | 2-1/16 | 3.09 |
| 24 | .1520 | 1 | 2-1/16 | 3.09 |
| 25 | .1495 | 1 | 2-1/16 | 2.88 |
| 26 | .1470 | 1 | 2-1/16 | 2.88 |
| 27 | .1440 | 1 | 2-1/16 | 2.88 |
| 28 | .1405 | 15/16 | 1-15/16 | 2.63 |
| 29 | .1360 | 15/16 | 1-15/16 | 2.63 |
| 30 | .1285 | 15/16 | 1-15/16 | 2.48 |
| 31 | .1200 | 7/8 | 1-7/8 | 2.48 |
| 32 | .1160 | 7/8 | 1-7/8 | 2.48 |
| 33 | .1130 | 7/8 | 1-7/8 | 2.39 |
| 34 | .1110 | 7/8 | 1-7/8 | 2.39 |
| 35 | .1100 | 7/8 | 1-7/8 | 2.39 |
| 36 | .1065 | 13/16 | 1-13/16 | 2.39 |
| 37 | .1040 | 13/16 | 1-13/16 | 2.39 |
| 38 | .1015 | 13/16 | 1-13/16 | 2.17 |
| 39 | .0995 | 13/16 | 1-13/16 | 2.17 |
| 40 | .0980 | 13/16 | 1-13/16 | 2.17 |

| Size | Decimal Equiv. | Flute Length | Overall Length | Price Each |
|------|----------------|--------------|----------------|------------|
| 41 | .0960 | 13/16 | 1-13/16 | 2.10 |
| 42 | .0935 | 3/4 | 1-3/4 | 2.06 |
| 43 | .0890 | 3/4 | 1-3/4 | 2.06 |
| 44 | .0860 | 3/4 | 1-3/4 | 2.06 |
| 45 | .0820 | 3/4 | 1-3/4 | 2.06 |
| 46 | .0810 | 3/4 | 1-3/4 | 2.06 |
| 47 | .0785 | 3/4 | 1-3/4 | 2.06 |
| 48 | .0760 | 11/16 | 1-11/16 | 2.06 |
| 49 | .0730 | 11/16 | 1-11/16 | 2.06 |
| 50 | .0700 | 11/16 | 1-11/16 | 2.06 |
| 51 | .0670 | 11/16 | 1-11/16 | 2.06 |
| 52 | .0635 | 11/16 | 1-11/16 | 2.06 |
| 53 | .0595 | 5/8 | 1-5/8 | 2.34 |
| 54 | .0550 | 5/8 | 1-5/8 | 2.34 |
| 55 | .0520 | 5/8 | 1-5/8 | 2.34 |
| 56 | .0465 | 1/2 | 1-3/8 | 2.34 |
| 57 | .0430 | 1/2 | 1-3/8 | 2.34 |
| 58 | .0420 | 1/2 | 1-3/8 | 2.48 |
| 59 | .0410 | 1/2 | 1-3/8 | 2.48 |
| 60 | .0400 | 1/2 | 1-3/8 | 2.48 |

*Cobalt sizes 53 — 60 are furnished with 135° point — NOT SPLIT.

LEFT HAND DRILLS

SCREW MACHINE LENGTH, 118° POINT



► LIST NO. 600LH

Please order in package quantity.



For use in left hand spindle rotation on screw machines and drill heads. Can use as screw extractor for drilling out broken studs or fasteners. The shorter, rigid drills minimize deflection when heavy feed rates are used.

FRACTIONAL SIZES

| Size | Dec. Equiv. | Flute Length | Overall Length | Pkg. Qty. | Price Each | Size | Dec. Equiv. | Flute Length | Overall Length | Pkg. Qty. | Price Each | Size | Dec. Equiv. | Flute Length | Overall Length | Pkg. Qty. | Price Each |
|-------|-------------|--------------|----------------|-----------|------------|-------|-------------|--------------|----------------|-----------|------------|---------|-------------|--------------|----------------|-----------|------------|
| 3/64 | .0469 | 1/2 | 1-3/8 | 12 | 3.78 | 27/64 | .4219 | 2 | 3-3/8 | 6 | 22.74 | 51/64 | .7969 | 3-3/8 | 5-1/4 | 1 | 131.52 |
| 1/16 | .0625 | 5/8 | 1-5/8 | 12 | 3.78 | 7/16 | .4375 | 2-1/16 | 3-7/16 | 6 | 23.74 | 13/16 | .8125 | 3-3/8 | 5-1/4 | 1 | 136.19 |
| 5/64 | .0781 | 11/16 | 1-11/16 | 12 | 3.78 | 29/64 | .4531 | 2-1/8 | 3-9/16 | 6 | 27.41 | 53/64 | .8281 | 3-1/2 | 5-3/8 | 1 | 136.19 |
| 3/32 | .0938 | 3/4 | 1-3/4 | 12 | 3.78 | 15/32 | .4688 | 2-1/8 | 3-5/8 | 6 | 29.56 | 27/32 | .8438 | 3-1/2 | 5-3/8 | 1 | 138.93 |
| 7/64 | .1094 | 13/16 | 1-13/16 | 12 | 3.78 | 31/64 | .4844 | 2-3/16 | 3-11/16 | 6 | 30.37 | 55/64 | .8594 | 3-1/2 | 5-1/2 | 1 | 138.93 |
| 1/8 | .1250 | 7/8 | 1-7/8 | 12 | 3.78 | 1/2 | .5000 | 2-1/4 | 3-3/4 | 6 | 30.37 | 7/8 | .8750 | 3-1/2 | 5-1/2 | 1 | 142.52 |
| 9/64 | .1406 | 15/16 | 1-15/16 | 12 | 3.78 | 33/64 | .5156 | 2-3/8 | 3-7/8 | 1 | 59.33 | 57/64 | .8906 | 3-5/8 | 5-5/8 | 1 | 142.52 |
| 5/32 | .1562 | 1 | 2-1/16 | 12 | 4.41 | 17/32 | .5312 | 2-3/8 | 3-7/8 | 1 | 59.33 | 29/32 | .9062 | 3-5/8 | 5-5/8 | 1 | 144.33 |
| 11/64 | .1719 | 1-1/16 | 2-1/8 | 12 | 4.81 | 35/64 | .5469 | 2-1/2 | 4 | 1 | 59.33 | 59/64 | .9219 | 3-3/4 | 5-3/4 | 1 | 144.33 |
| 3/16 | .1875 | 1-1/8 | 2-3/16 | 12 | 5.41 | 9/16 | .5625 | 2-1/2 | 4 | 1 | 59.33 | 15/16 | .9375 | 3-3/4 | 5-3/4 | 1 | 153.67 |
| 13/64 | .2031 | 1-3/16 | 2-1/4 | 12 | 6.11 | 37/64 | .5781 | 2-5/8 | 4-1/8 | 1 | 70.85 | 61/64 | .9531 | 3-7/8 | 5-7/8 | 1 | 153.67 |
| 7/32 | .2188 | 1-1/4 | 2-3/8 | 12 | 7.00 | 19/32 | .5938 | 2-5/8 | 4-1/8 | 1 | 70.85 | 31/32 | .9688 | 3-7/8 | 5-7/8 | 1 | 157.33 |
| 15/64 | .2344 | 1-5/16 | 2-7/16 | 12 | 7.41 | 39/64 | .6094 | 2-3/4 | 4-1/4 | 1 | 74.52 | 63/64 | .9844 | 4 | 6 | 1 | 157.33 |
| 1/4 | .2500 | 1-3/8 | 2-1/2 | 12 | 7.78 | 5/8 | .6250 | 2-3/4 | 4-1/4 | 1 | 74.52 | 1 | 1.0000 | 4 | 6 | 1 | 153.00 |
| 17/64 | .2656 | 1-7/16 | 2-5/8 | 12 | 9.63 | 41/64 | .6406 | 2-7/8 | 4-1/2 | 1 | 75.19 | 1-1/32 | 1.0312 | 4 | 6-1/4 | 1 | 190.00 |
| 9/32 | .2812 | 1-1/2 | 2-11/16 | 6 | 10.44 | 21/32 | .6562 | 2-7/8 | 4-1/2 | 1 | 75.19 | 1-1/16 | 1.0625 | 4 | 6-1/4 | 1 | 202.00 |
| 19/64 | .2969 | 1-9/16 | 2-3/4 | 6 | 11.33 | 43/64 | .6719 | 2-7/8 | 4-5/8 | 1 | 87.33 | 1-1/8 | 1.1250 | 4 | 6-3/8 | 1 | 219.85 |
| 5/16 | .3125 | 1-5/8 | 2-13/16 | 6 | 11.70 | 11/16 | .6875 | 2-7/8 | 4-5/8 | 1 | 87.33 | 1-5/32 | 1.1562 | 4-1/4 | 6-5/8 | 1 | 230.00 |
| 21/64 | .3281 | 1-11/16 | 2-15/16 | 6 | 12.74 | 45/64 | .7031 | 3 | 4-3/4 | 1 | 97.96 | 1-3/16 | 1.1875 | 4-1/4 | 6-5/8 | 1 | 224.00 |
| 11/32 | .3438 | 1-11/16 | 3 | 6 | 14.78 | 23/32 | .7188 | 3 | 4-3/4 | 1 | 104.85 | 1-15/64 | 1.2344 | 4-3/8 | 6-3/4 | 1 | 300.16 |
| 23/64 | .3594 | 1-3/4 | 3-1/16 | 6 | 16.96 | 47/64 | .7344 | 3-1/8 | 5 | 1 | 104.85 | 1-1/4 | 1.2500 | 4-3/8 | 6-3/4 | 1 | 286.52 |
| 3/8 | .3750 | 1-13/16 | 3-1/8 | 6 | 18.11 | 3/4 | .7500 | 3-1/8 | 5 | 1 | 126.67 | 1-9/32 | 1.2812 | 4-3/8 | 7 | 1 | 320.90 |
| 25/64 | .3906 | 1-7/8 | 3-1/4 | 6 | 20.00 | 49/64 | .7656 | 3-1/4 | 5-1/8 | 1 | 126.67 | 1-11/32 | 1.3438 | 4-1/2 | 7-1/8 | 1 | 336.95 |
| 13/32 | .4062 | 1-15/16 | 3-5/16 | 6 | 20.93 | 25/32 | .7812 | 3-1/4 | 5-1/8 | 1 | 131.52 | | | | | | |

LETTER SIZES

| Size | Dec. Equiv. | Flute Length | Overall Length | Pkg. Qty. | Price Each | Size | Dec. Equiv. | Flute Length | Overall Length | Pkg. Qty. | Price Each | Size | Dec. Equiv. | Flute Length | Overall Length | Pkg. Qty. | Price Each |
|------|-------------|--------------|----------------|-----------|------------|------|-------------|--------------|----------------|-----------|------------|------|-------------|--------------|----------------|-----------|------------|
| A | .2340 | 1-5/16 | 2-7/16 | 12 | 8.85 | J | .2770 | 1-1/2 | 2-11/16 | 6 | 11.67 | S | .3480 | 1-3/4 | 3-1/16 | 6 | 17.67 |
| B | .2380 | 1-3/8 | 2-1/2 | 12 | 8.85 | K | .2810 | 1-1/2 | 2-11/16 | 6 | 12.26 | T | .3580 | 1-3/4 | 3-1/16 | 6 | 20.81 |
| C | .2420 | 1-3/8 | 2-1/2 | 12 | 8.85 | L | .2900 | 1-9/16 | 2-3/4 | 6 | 12.26 | U | .3680 | 1-13/16 | 3-1/8 | 6 | 20.81 |
| D | .2460 | 1-3/8 | 2-1/2 | 12 | 8.85 | M | .2950 | 1-9/16 | 2-3/4 | 6 | 13.33 | V | .3770 | 1-7/8 | 3-1/4 | 6 | 23.19 |
| E | .2500 | 1-3/8 | 2-1/2 | 12 | 7.78 | N | .3020 | 1-5/8 | 2-13/16 | 6 | 13.33 | W | .3860 | 1-7/8 | 3-1/4 | 6 | 23.19 |
| F | .2570 | 1-7/16 | 2-5/8 | 12 | 9.96 | O | .3160 | 1-11/16 | 2-15/16 | 6 | 13.33 | X | .3970 | 1-15/16 | 3-5/16 | 6 | 27.19 |
| G | .2610 | 1-7/16 | 2-5/8 | 12 | 10.85 | P | .3230 | 1-11/16 | 2-15/16 | 6 | 15.37 | Y | .4040 | 1-15/16 | 3-5/16 | 6 | 31.51 |
| H | .2660 | 1-1/2 | 2-11/16 | 12 | 10.93 | Q | .3320 | 1-11/16 | 3 | 6 | 15.37 | Z | .4130 | 2 | 3-3/8 | 6 | 31.51 |
| I | .2720 | 1-1/2 | 2-11/16 | 6 | 10.93 | R | .3390 | 1-11/16 | 3 | 6 | 15.37 | | | | | | |

WIRE GAUGE SIZES

| Size | Dec. Equiv. | Flute Length | Overall Length | Pkg. Qty. | Price Each | Size | Dec. Equiv. | Flute Length | Overall Length | Pkg. Qty. | Price Each | Size | Dec. Equiv. | Flute Length | Overall Length | Pkg. Qty. | Price Each |
|------|-------------|--------------|----------------|-----------|------------|------|-------------|--------------|----------------|-----------|------------|------|-------------|--------------|----------------|-----------|------------|
| 1 | .2280 | 1-5/16 | 2-7/16 | 12 | 7.67 | 22 | .1570 | 1-1/16 | 2-1/8 | 12 | 4.81 | 43 | .0890 | 3/4 | 1-3/4 | 12 | 4.19 |
| 2 | .2210 | 1-5/16 | 2-7/16 | 12 | 7.67 | 23 | .1540 | 1 | 2-1/16 | 12 | 4.81 | 44 | .0860 | 3/4 | 1-3/4 | 12 | 4.19 |
| 3 | .2130 | 1-1/4 | 2-3/8 | 12 | 7.15 | 24 | .1520 | 1 | 2-1/16 | 12 | 4.81 | 45 | .0820 | 3/4 | 1-3/4 | 12 | 4.19 |
| 4 | .2090 | 1-1/4 | 2-3/8 | 12 | 7.15 | 25 | .1495 | 1 | 2-1/16 | 12 | 4.33 | 46 | .0810 | 3/4 | 1-3/4 | 12 | 4.19 |
| 5 | .2055 | 1-1/4 | 2-3/8 | 12 | 7.15 | 26 | .1470 | 1 | 2-1/16 | 12 | 4.96 | 47 | .0785 | 3/4 | 1-3/4 | 12 | 4.19 |
| 6 | .2040 | 1-1/4 | 2-3/8 | 12 | 7.15 | 27 | .1440 | 1 | 2-1/16 | 12 | 5.18 | 48 | .0760 | 11/16 | 1-11/16 | 12 | 3.96 |
| 7 | .2010 | 1-3/16 | 2-1/4 | 12 | 6.00 | 28 | .1405 | 15/16 | 1-15/16 | 12 | 4.15 | 49 | .0730 | 11/16 | 1-11/16 | 12 | 3.96 |
| 8 | .1990 | 1-3/16 | 2-1/4 | 12 | 6.00 | 29 | .1360 | 15/16 | 1-15/16 | 12 | 3.96 | 50 | .0700 | 11/16 | 1-11/16 | 12 | 3.96 |
| 9 | .1960 | 1-3/16 | 2-1/4 | 12 | 6.00 | 30 | .1285 | 15/16 | 1-15/16 | 12 | 3.96 | 51 | .0670 | 11/16 | 1-11/16 | 12 | 3.96 |
| 10 | .1935 | 1-3/16 | 2-1/4 | 12 | 6.00 | 31 | .1200 | 7/8 | 1-7/8 | 12 | 4.15 | 52 | .0635 | 11/16 | 1-11/16 | 12 | 3.96 |
| 11 | .1910 | 1-3/16 | 2-1/4 | 12 | 5.78 | 32 | .1160 | 7/8 | 1-7/8 | 12 | 4.15 | 53 | .0595 | 5/8 | 1-5/8 | 12 | 3.96 |
| 12 | .1890 | 1-3/16 | 2-1/4 | 12 | 5.78 | 33 | .1130 | 7/8 | 1-7/8 | 12 | 4.15 | 54 | .0550 | 5/8 | 1-5/8 | 12 | 3.96 |
| 13 | .1850 | 1-1/8 | 2-3/16 | 12 | 5.78 | 34 | .1110 | 7/8 | 1-7/8 | 12 | 4.15 | 55 | .0520 | 5/8 | 1-5/8 | 12 | 3.96 |
| 14 | .1820 | 1-1/8 | 2-3/16 | 12 | 5.85 | 35 | .1100 | 7/8 | 1-7/8 | 12 | 4.15 | 56 | .0465 | 1/2 | 1-3/8 | 12 | 3.96 |
| 15 | .1800 | 1-1/8 | 2-3/16 | 12 | 5.85 | 36 | .1065 | 13/16 | 1-13/16 | 12 | 4.15 | 57 | .0430 | 1/2 | 1-3/8 | 12 | 3.96 |
| 16 | .1770 | 1-1/8 | 2-3/16 | 12 | 5.85 | 37 | .1040 | 13/16 | 1-13/16 | 12 | 4.15 | 58 | .0420 | 1/2 | 1-3/8 | 12 | 3.96 |
| 17 | .1730 | 1-1/8 | 2-3/16 | 12 | 5.63 | 38 | .1015 | 13/16 | 1-13/16 | 12 | 3.96 | 59 | .0410 | 1/2 | 1-3/8 | 12 | 3.96 |
| 18 | .1695 | 1-1/16 | 2-1/8 | 12 | 5.19 | 39 | .0995 | 13/16 | 1-13/16 | 12 | 3.96 | 60 | .0400 | 1/2 | 1-3/8 | 12 | 3.96 |
| 19 | .1660 | 1-1/16 | 2-1/8 | 12 | 5.19 | 40 | .0980 | 13/16 | 1-13/16 | 12 | 3.96 | 73 | .0240 | 3/16 | 15/16 | 12 | 9.85 |
| 20 | .1610 | 1-1/16 | 2-1/8 | 12 | 5.19 | 41 | .0960 | 13/16 | 1-13/16 | 12 | 3.96 | 77 | .0180 | 3/16 | 15/16 | 12 | 9.85 |
| 21 | .1590 | 1-1/16 | 2-1/8 | 12 | 5.00 | 42 | .0935 | 3/4 | 1-3/4 | 12 | 4.19 | 80 | .0135 | 3/16 | 15/16 | 12 | 11.33 |

MAINTENANCE SCREW MACHINE DRILLS



► LIST NO. X600
 Please order in package quantity.



SET NO. X607F
 29 Piece High Speed
 Maintenance Screw
 Machine Fractional Set
 1/16 - 1/2 x 64ths in Metal Case
SET PRICE — \$95.00

FRACTIONAL SIZES

| Size | Flute Length | Overall Length | Price Each |
|-------|--------------|----------------|------------|
| 3/64 | 1/2 | 1-3/8 | 1.12 |
| 1/16 | 5/8 | 1-5/8 | 1.04 |
| 5/64 | 11/16 | 1-11/16 | 1.04 |
| 3/32 | 3/4 | 1-3/4 | 1.04 |
| 7/64 | 13/16 | 1-13/16 | 1.04 |
| 1/8 | 7/8 | 1-7/8 | 1.04 |
| 9/64 | 15/16 | 1-15/16 | 1.04 |
| 5/32 | 1 | 2-1/16 | 1.19 |
| 11/64 | 1-1/16 | 2-1/8 | 1.28 |
| 3/16 | 1-1/8 | 2-3/16 | 1.31 |
| 13/64 | 1-3/16 | 2-1/4 | 1.46 |
| 7/32 | 1-1/4 | 2-3/8 | 1.70 |
| 15/64 | 1-5/16 | 2-7/16 | 1.77 |
| 1/4 | 1-3/8 | 2-1/2 | 1.98 |
| 17/64 | 1-7/16 | 2-5/8 | 2.16 |
| 9/32 | 1-1/2 | 2-11/16 | 2.29 |
| 19/64 | 1-9/16 | 2-3/4 | 2.50 |
| 5/16 | 1-5/8 | 2-13/16 | 2.70 |
| 21/64 | 1-11/16 | 2-15/16 | 2.98 |
| 11/32 | 1-11/16 | 3 | 3.35 |
| 23/64 | 1-3/4 | 3-1/16 | 3.91 |
| 3/8 | 1-13/16 | 3-1/8 | 4.06 |
| 25/64 | 1-7/8 | 3-1/4 | 4.52 |
| 13/32 | 1-15/16 | 3-5/16 | 4.73 |
| 27/64 | 2 | 3-3/8 | 5.19 |
| 7/16 | 2-1/16 | 3-7/16 | 5.27 |

3/64 — 17/64 12 Pc. Per Pkg.

| Size | Flute Length | Overall Length | Price Each |
|-------|--------------|----------------|------------|
| 29/64 | 2-1/8 | 3-9/16 | 6.33 |
| 15/32 | 2-1/8 | 3-5/8 | 6.61 |
| 31/64 | 2-3/16 | 3-11/16 | 6.94 |
| 1/2 | 2-1/4 | 3-3/4 | 6.82 |
| 33/64 | 2-3/8 | 3-7/8 | 15.27 |
| 17/32 | 2-3/8 | 3-7/8 | 15.69 |
| 35/64 | 2-1/2 | 4 | 16.65 |
| 9/16 | 2-1/2 | 4 | 16.35 |
| 37/64 | 2-5/8 | 4-1/8 | 19.08 |
| 19/32 | 2-5/8 | 4-1/8 | 18.71 |
| 39/64 | 2-3/4 | 4-1/4 | 19.23 |
| 5/8 | 2-3/4 | 4-1/4 | 18.89 |
| 41/64 | 2-7/8 | 4-1/2 | 22.09 |
| 21/32 | 2-7/8 | 4-1/2 | 21.69 |
| 43/64 | 2-7/8 | 4-5/8 | 24.50 |
| 11/16 | 2-7/8 | 4-5/8 | 24.05 |
| 45/64 | 3 | 4-3/4 | 27.32 |
| 23/32 | 3 | 4-3/4 | 26.34 |
| 47/64 | 3-1/8 | 5 | 28.84 |
| 3/4 | 3-1/8 | 5 | 27.81 |
| 49/64 | 3-1/4 | 5-1/8 | 31.75 |
| 25/32 | 3-1/4 | 5-1/8 | 30.61 |
| 51/64 | 3-3/8 | 5-1/4 | 33.42 |
| 13/16 | 3-3/8 | 5-1/4 | 32.23 |
| 53/64 | 3-1/2 | 5-3/8 | 35.39 |
| 27/32 | 3-1/2 | 5-3/8 | 34.12 |
| 55/64 | 3-1/2 | 5-1/2 | 36.65 |

9/32 — 1/2 6 Pc. Per Pkg.

| Size | Flute Length | Overall Length | Price Each |
|---------|--------------|----------------|------------|
| 7/8 | 3-1/2 | 5-1/2 | 35.34 |
| 57/64 | 3-5/8 | 5-5/8 | 38.05 |
| 29/32 | 3-5/8 | 5-5/8 | 36.69 |
| 59/64 | 3-3/4 | 5-3/4 | 41.94 |
| 15/16 | 3-3/4 | 5-3/4 | 40.44 |
| 61/64 | 3-7/8 | 5-7/8 | 45.62 |
| 31/32 | 3-7/8 | 5-7/8 | 43.99 |
| 63/64 | 4 | 6 | 47.33 |
| 1 | 4 | 6 | 45.64 |
| 1-1/16 | 4 | 6-1/4 | 56.93 |
| 1-1/8 | 4 | 6-3/8 | 64.51 |
| 1-5/32 | 4-1/4 | 6-5/8 | 66.91 |
| 1-3/16 | 4-1/4 | 6-5/8 | 74.83 |
| 1-1/4 | 4-3/8 | 6-3/4 | 99.83 |
| 1-5/16 | 4-3/8 | 7 | 106.42 |
| 1-3/8 | 4-1/2 | 7-1/8 | 114.11 |
| 1-7/16 | 4-3/4 | 7-3/8 | 129.94 |
| 1-1/2 | 4-7/8 | 7-1/2 | 120.30 |
| 1-9/16 | 4-7/8 | 7-3/4 | 135.92 |
| 1-5/8 | 4-7/8 | 7-3/4 | 152.50 |
| 1-11/16 | 5-1/8 | 8 | 174.37 |
| 1-3/4 | 5-1/8 | 8 | 180.64 |
| 1-13/16 | 5-3/8 | 8-1/4 | 198.19 |
| 1-7/8 | 5-3/8 | 8-1/4 | 203.83 |
| 1-15/16 | 5-5/8 | 8-1/2 | 216.22 |
| 2 | 5-5/8 | 8-1/2 | 227.19 |
| 2-3/16 | 5-5/8 | 8-1/2 | 287.30 |

33/64 — 2-3/16 1 Pc. Per Pkg.

WIRE GAUGE SIZES

| Size | Flute Length | Overall Length | Price Each |
|------|--------------|----------------|------------|
| 1 | 1-5/16 | 2-7/16 | 1.83 |
| 2 | 1-5/16 | 2-7/16 | 1.83 |
| 3 | 1-1/4 | 2-3/8 | 1.74 |
| 4 | 1-1/4 | 2-3/8 | 1.74 |
| 5 | 1-1/4 | 2-3/8 | 1.74 |
| 6 | 1-1/4 | 2-3/8 | 1.74 |
| 7 | 1-3/16 | 2-1/4 | 1.44 |
| 8 | 1-3/16 | 2-1/4 | 1.44 |
| 9 | 1-3/16 | 2-1/4 | 1.44 |
| 10 | 1-3/16 | 2-1/4 | 1.44 |
| 11 | 1-3/16 | 2-1/4 | 1.44 |
| 12 | 1-3/16 | 2-1/4 | 1.44 |
| 13 | 1-1/8 | 2-3/16 | 1.44 |
| 14 | 1-1/8 | 2-3/16 | 1.44 |
| 15 | 1-1/8 | 2-3/16 | 1.44 |
| 16 | 1-1/8 | 2-3/16 | 1.44 |
| 17 | 1-1/8 | 2-3/16 | 1.44 |
| 18 | 1-1/16 | 2-1/8 | 1.24 |
| 19 | 1-1/16 | 2-1/8 | 1.24 |
| 20 | 1-1/16 | 2-1/8 | 1.24 |

1 — 60 12 Pc. Per Pkg.

| Size | Flute Length | Overall Length | Price Each |
|------|--------------|----------------|------------|
| 21 | 1-1/16 | 2-1/8 | 1.19 |
| 22 | 1-1/16 | 2-1/8 | 1.19 |
| 23 | 1 | 2-1/16 | 1.19 |
| 24 | 1 | 2-1/16 | 1.19 |
| 25 | 1 | 2-1/16 | 1.16 |
| 26 | 1 | 2-1/16 | 1.16 |
| 27 | 1 | 2-1/16 | 1.02 |
| 28 | 15/16 | 1-15/16 | 1.02 |
| 29 | 15/16 | 1-15/16 | 1.02 |
| 30 | 15/16 | 1-15/16 | 1.02 |
| 31 | 7/8 | 1-7/8 | 1.02 |
| 32 | 7/8 | 1-7/8 | 1.02 |
| 33 | 7/8 | 1-7/8 | 1.02 |
| 34 | 7/8 | 1-7/8 | 1.02 |
| 35 | 7/8 | 1-7/8 | 1.02 |
| 36 | 13/16 | 1-13/16 | 1.02 |
| 37 | 13/16 | 1-13/16 | 1.02 |
| 38 | 13/16 | 1-13/16 | 1.02 |
| 39 | 13/16 | 1-13/16 | 1.02 |
| 40 | 13/16 | 1-13/16 | 1.02 |

| Size | Flute Length | Overall Length | Price Each |
|------|--------------|----------------|------------|
| 41 | 13/16 | 1-13/16 | 1.02 |
| 42 | 3/4 | 1-3/4 | 1.02 |
| 43 | 3/4 | 1-3/4 | 1.02 |
| 44 | 3/4 | 1-3/4 | 1.02 |
| 45 | 3/4 | 1-3/4 | 1.02 |
| 46 | 3/4 | 1-3/4 | 1.02 |
| 47 | 3/4 | 1-3/4 | 1.02 |
| 48 | 11/16 | 1-11/16 | 1.02 |
| 49 | 11/16 | 1-11/16 | 1.02 |
| 50 | 11/16 | 1-11/16 | 1.02 |
| 51 | 11/16 | 1-11/16 | 1.02 |
| 52 | 11/16 | 1-11/16 | 1.02 |
| 53 | 5/8 | 1-5/8 | 1.02 |
| 54 | 5/8 | 1-5/8 | 1.02 |
| 55 | 5/8 | 1-5/8 | 1.02 |
| 56 | 1/2 | 1-3/8 | 1.02 |
| 57 | 1/2 | 1-3/8 | 1.02 |
| 58 | 1/2 | 1-3/8 | 1.02 |
| 59 | 1/2 | 1-3/8 | 1.02 |
| 60 | 1/2 | 1-3/8 | 1.02 |

LETTER SIZES

| Size | Flute Length | Overall Length | Price Each |
|------|--------------|----------------|------------|
| A | 1-5/16 | 2-7/16 | 2.20 |
| B | 1-3/8 | 2-1/2 | 2.20 |
| C | 1-3/8 | 2-1/2 | 2.20 |
| D | 1-3/8 | 2-1/2 | 2.20 |
| E | 1-3/8 | 2-1/2 | 1.98 |
| F | 1-7/16 | 2-5/8 | 2.41 |
| G | 1-7/16 | 2-5/8 | 2.55 |
| H | 1-1/2 | 2-11/16 | 2.55 |
| I | 1-1/2 | 2-11/16 | 2.55 |

A — H 12 Pc. Per Pkg.

| Size | Flute Length | Overall Length | Price Each |
|------|--------------|----------------|------------|
| J | 1-1/2 | 2-11/16 | 2.77 |
| K | 1-1/2 | 2-11/16 | 2.96 |
| L | 1-9/16 | 2-3/4 | 2.96 |
| M | 1-9/16 | 2-3/4 | 3.23 |
| N | 1-5/8 | 2-13/16 | 3.23 |
| O | 1-11/16 | 2-15/16 | 3.32 |
| P | 1-11/16 | 2-15/16 | 3.65 |
| Q | 1-11/16 | 3 | 3.65 |
| R | 1-11/16 | 3 | 3.65 |

I — Z 6 Pc. Per Pkg.

| Size | Flute Length | Overall Length | Price Each |
|------|--------------|----------------|------------|
| S | 1-3/4 | 3-1/16 | 4.25 |
| T | 1-3/4 | 3-1/16 | 4.91 |
| U | 1-13/16 | 3-1/8 | 4.91 |
| V | 1-7/8 | 3-1/4 | 5.17 |
| W | 1-7/8 | 3-1/4 | 5.43 |
| X | 1-15/16 | 3-5/16 | 6.32 |
| Y | 1-15/16 | 3-5/16 | 7.50 |
| Z | 2 | 3-3/8 | 7.50 |

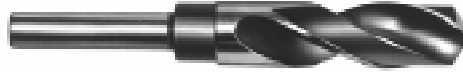
HIGH SPEED STEEL

Federal Tool Premium Import

MAINTENANCE REDUCED SHANK DRILLS

1/2" SHANK — SILVER AND DEMING

► LIST NO. X303



SET NO. X303SA

8 Piece Maintenance Reduced Shank Drill Set 9/16 -1" x 16ths in wood stand

SET PRICE — \$177.00

All sizes 6" overall with 3" flute length.

| Size | Price Each |
|-------|------------|
| 33/64 | 13.50 |
| 17/32 | 13.50 |
| 35/64 | 14.90 |
| 9/16 | 14.90 |
| 37/64 | 16.03 |
| 19/32 | 16.03 |
| 39/64 | 16.73 |
| 5/8 | 16.73 |
| 41/64 | 17.97 |
| 21/32 | 17.97 |
| 43/64 | 18.90 |

| Size | Price Each |
|-------|------------|
| 11/16 | 18.90 |
| 45/64 | 19.20 |
| 23/32 | 19.20 |
| 47/64 | 20.30 |
| 3/4 | 20.30 |
| 49/64 | 21.87 |
| 25/32 | 21.87 |
| 51/64 | 22.80 |
| 13/16 | 22.80 |
| 53/64 | 24.00 |
| 27/32 | 24.00 |

| Size | Price Each |
|--------|------------|
| 55/64 | 24.30 |
| 7/8 | 24.30 |
| 57/64 | 26.27 |
| 29/32 | 26.27 |
| 59/64 | 27.26 |
| 15/16 | 27.26 |
| 61/64 | 29.40 |
| 31/32 | 29.40 |
| 63/64 | 32.33 |
| 1 | 32.33 |
| 1-1/64 | 37.80 |

| Size | Price Each |
|---------|------------|
| 1-1/32 | 38.67 |
| 1-3/64 | 38.67 |
| 1-1/16 | 38.67 |
| 1-5/64 | 39.67 |
| 1-3/32 | 41.37 |
| 1-7/64 | 42.00 |
| 1-1/8 | 43.47 |
| 1-9/64 | 43.47 |
| 1-5/32 | 43.47 |
| 1-11/64 | 47.30 |
| 1-3/16 | 47.73 |

| Size | Price Each |
|---------|------------|
| 1-13/64 | 50.20 |
| 1-7/32 | 51.87 |
| 1-15/64 | 51.87 |
| 1-1/4 | 51.87 |
| 1-17/64 | 59.67 |
| 1-9/32 | 59.67 |
| 1-19/64 | 63.67 |
| 1-5/16 | 63.67 |
| 1-21/64 | 69.30 |
| 1-11/32 | 69.30 |
| 1-23/64 | 72.70 |

| Size | Price Each |
|---------|------------|
| 1-3/8 | 72.70 |
| 1-25/64 | 75.60 |
| 1-13/32 | 75.60 |
| 1-27/64 | 80.77 |
| 1-7/16 | 80.77 |
| 1-29/64 | 83.37 |
| 1-15/32 | 83.37 |
| 1-31/64 | 87.90 |
| 1-1/2 | 87.90 |

HIGH SPEED STEEL

Federal Tool Premium Import

MAINTENANCE TAPER LENGTH DRILLS

► LIST NO. X400

SET NO. X407F

29 Piece Maintenance Taper Length Fractional Set
1/16 - 1/2 x 64ths in metal case

SET PRICE — \$212.99



Please order in package quantity

| Size | Flute Length | Overall Length | Price Each |
|-------|--------------|----------------|------------|
| 1/64 | 5/16 | 1-1/2 | 6.16 |
| 1/32 | 3/4 | 2 | 4.50 |
| 3/64 | 1-1/8 | 2-1/4 | 2.12 |
| 1/16 | 1-3/4 | 3 | 2.20 |
| 5/64 | 2 | 3-3/4 | 2.59 |
| 3/32 | 2-1/4 | 4-1/4 | 3.09 |
| 7/64 | 2-1/2 | 4-5/8 | 3.91 |
| 1/8 | 2-3/4 | 5-1/8 | 3.97 |
| 9/64 | 3 | 5-3/8 | 4.82 |
| 5/32 | 3 | 5-3/8 | 4.82 |
| 11/64 | 3-3/8 | 5-3/4 | 4.86 |
| 3/16 | 3-3/8 | 5-3/4 | 4.82 |
| 13/64 | 3-5/8 | 6 | 5.67 |
| 7/32 | 3-5/8 | 6 | 5.62 |
| 15/64 | 3-3/4 | 6-1/8 | 5.67 |
| 1/4 | 3-3/4 | 6-1/8 | 5.62 |
| 17/64 | 3-7/8 | 6-1/4 | 6.94 |
| 9/32 | 3-7/8 | 6-1/4 | 6.87 |
| 19/64 | 4 | 6-3/8 | 7.03 |
| 5/16 | 4 | 6-3/8 | 6.96 |
| 21/64 | 4-1/8 | 6-1/2 | 8.05 |
| 11/32 | 4-1/8 | 6-1/2 | 7.98 |
| 23/64 | 4-1/4 | 6-3/4 | 9.48 |
| 3/8 | 4-1/4 | 6-3/4 | 9.39 |
| 25/64 | 4-3/8 | 7 | 9.89 |
| 13/32 | 4-3/8 | 7 | 9.80 |
| 27/64 | 4-5/8 | 7-1/4 | 10.68 |
| 7/16 | 4-5/8 | 7-1/4 | 10.78 |
| 29/64 | 4-3/4 | 7-1/2 | 12.08 |
| 15/32 | 4-3/4 | 7-1/2 | 12.70 |
| 31/64 | 4-3/4 | 7-3/4 | 13.38 |
| 1/2 | 4-3/4 | 7-3/4 | 13.25 |

1/64 — 17/64 12 pc. per pkg.

| Size | Flute Length | Overall Length | Price Each |
|-------|--------------|----------------|------------|
| 33/64 | 4-3/4 | 8 | 18.96 |
| 17/32 | 4-3/4 | 8 | 18.77 |
| 35/64 | 4-7/8 | 8-1/4 | 19.93 |
| 9/16 | 4-7/8 | 8-1/4 | 19.74 |
| 37/64 | 4-7/8 | 8-3/4 | 23.30 |
| 19/32 | 4-7/8 | 8-3/4 | 23.30 |
| 39/64 | 4-7/8 | 8-3/4 | 24.11 |
| 5/8 | 4-7/8 | 8-3/4 | 23.87 |
| 41/64 | 5-1/8 | 9 | 29.06 |
| 21/32 | 5-1/8 | 9 | 27.74 |
| 43/64 | 5-3/8 | 9-1/4 | 34.13 |
| 11/16 | 5-3/8 | 9-1/4 | 33.00 |
| 45/64 | 5-5/8 | 9-1/2 | 35.93 |
| 23/32 | 5-5/8 | 9-1/2 | 34.30 |
| 47/64 | 5-7/8 | 9-3/4 | 38.64 |
| 3/4 | 5-7/8 | 9-3/4 | 36.19 |
| 49/64 | 6 | 9-7/8 | 42.43 |
| 25/32 | 6 | 9-7/8 | 40.51 |
| 51/64 | 6-1/8 | 10 | 45.64 |
| 13/16 | 6-1/8 | 10 | 43.15 |
| 53/64 | 6-1/8 | 10 | 49.37 |
| 27/32 | 6-1/8 | 10 | 45.86 |
| 55/64 | 6-1/8 | 10 | 51.86 |
| 7/8 | 6-1/8 | 10 | 48.18 |
| 57/64 | 6-1/8 | 10 | 54.03 |
| 29/32 | 6-1/8 | 10 | 50.19 |
| 59/64 | 6-1/8 | 10-3/4 | 58.80 |
| 15/16 | 6-1/8 | 10-3/4 | 54.61 |
| 61/64 | 6-3/8 | 11 | 64.86 |
| 31/32 | 6-3/8 | 11 | 60.24 |
| 63/64 | 6-3/8 | 11 | 67.62 |
| 1 | 6-3/8 | 11 | 62.80 |

9/32 — 1/2 6 pc. per pkg.

| Size | Flute Length | Overall Length | Price Each |
|---------|--------------|----------------|------------|
| 1-1/64 | 6-1/2 | 11-1/8 | 89.12 |
| 1-1/32 | 6-1/2 | 11-1/8 | 78.77 |
| 1-3/64 | 6-5/8 | 11-1/4 | 92.17 |
| 1-1/16 | 6-5/8 | 11-1/4 | 81.46 |
| 1-5/64 | 6-7/8 | 11-1/2 | 98.88 |
| 1-3/32 | 6-7/8 | 11-1/2 | 87.39 |
| 1-7/64 | 7-1/8 | 11-3/4 | 102.63 |
| 1-1/8 | 7-1/8 | 11-3/4 | 86.59 |
| 1-9/64 | 7-1/4 | 11-7/8 | 103.30 |
| 1-5/32 | 7-1/4 | 11-7/8 | 98.73 |
| 1-11/64 | 7-3/8 | 12 | 111.22 |
| 1-3/16 | 7-3/8 | 12 | 101.47 |
| 1-13/64 | 7-1/2 | 12-1/8 | 114.54 |
| 1-7/32 | 7-1/2 | 12-1/8 | 104.49 |
| 1-15/64 | 7-7/8 | 12-1/2 | 119.13 |
| 1-1/4 | 7-7/8 | 12-1/2 | 108.69 |
| 1-9/32 | 8-1/2 | 14-1/8 | 126.17 |
| 1-5/16 | 8-5/8 | 14-1/4 | 135.85 |
| 1-11/32 | 8-3/4 | 14-3/8 | 139.75 |
| 1-3/8 | 8-7/8 | 14-1/2 | 145.71 |
| 1-13/32 | 9 | 14-5/8 | 152.17 |
| 1-7/16 | 9-1/8 | 14-3/4 | 158.78 |
| 1-15/32 | 9-1/4 | 14-7/8 | 165.36 |
| 1-1/2 | 9-3/8 | 15 | 177.99 |
| 1-9/16 | 9-5/8 | 15-1/4 | 199.17 |
| 1-5/8 | 9-7/8 | 15-5/8 | 224.88 |
| 1-11/16 | 10-1/8 | 16 | 259.78 |
| 1-3/4 | 10-1/2 | 16-1/4 | 270.99 |
| 1-13/16 | 10-1/2 | 16-1/4 | 323.28 |
| 1-15/16 | 10-3/4 | 16-5/8 | 365.95 |
| 2 | 10-3/4 | 17-1/4 | 373.10 |

33/64 — 2 1 pc. per pkg.



HIGH SPEED STEEL AND COBALT

REDUCED SHANK DRILLS

1/2" SHANKS — SILVER AND DEMING

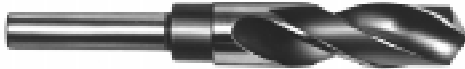
▶ LIST NO. 303 — HIGH SPEED STEEL, 118° POINT
1/2" STANDARD SHANK

● LIST NO. 303F — HIGH SPEED STEEL, 118° POINT
1/2" FLATTED SHANK
3-EQUAL FLATS FOR POSITIVE MORE RIGID
HOLDING IN 3-JAW CHUCKS

● LIST NO. 303C — COBALT, 135° NOTCHED POINT
1/2" STANDARD SHANK

● LIST NO. 303CF — COBALT, 135° NOTCHED POINT
1/2" FLATTED SHANK
3-EQUAL FLATS FOR POSITIVE MORE RIGID
HOLDING IN 3-JAW CHUCKS

Heavy web 8% cobalt content permits use at higher speeds in hardened stainless, heat treated and high temperature alloys.

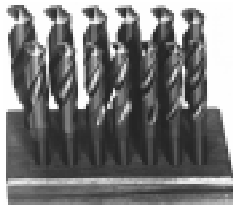


All sizes 6" overall with 3" flute length.

FRACTIONAL SIZES

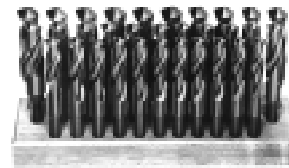
| Size | Dec. Equiv. | Price Each | | | |
|-------|-------------|---------------------|----------------------|--------------------|-----------------------|
| | | Standard 1/2" Shank | | Flatted Shank | |
| | | H.S. List No. 303 | Cobalt List No. 303C | H.S. List No. 303F | Cobalt List No. 303CF |
| 1/2 | .5000 | 25.90 | 37.70 | 27.40 | 43.70 |
| 33/64 | .5156 | 28.29 | 46.60 | 29.73 | 52.60 |
| 17/32 | .5312 | 27.52 | 46.60 | 28.91 | 52.20 |
| 35/64 | .5469 | 30.09 | 48.20 | 31.62 | 54.20 |
| 9/16 | .5625 | 29.26 | 48.20 | 30.76 | 54.20 |
| 37/64 | .5781 | 32.32 | 51.60 | 33.97 | 57.60 |
| 19/32 | .5938 | 31.44 | 51.60 | 33.04 | 57.60 |
| 39/64 | .6094 | 33.87 | 54.85 | 35.59 | 60.85 |
| 5/8 | .6250 | 32.99 | 54.85 | 34.61 | 60.85 |
| 41/64 | .6406 | 36.14 | 61.55 | 37.96 | 67.55 |
| 21/32 | .6562 | 35.15 | 61.55 | 36.93 | 67.55 |
| 43/64 | .6719 | 37.55 | 64.95 | 39.45 | 70.95 |
| 11/16 | .6875 | 36.52 | 64.95 | 38.38 | 70.95 |
| 45/64 | .7031 | 38.04 | 69.45 | 39.98 | 75.45 |
| 23/32 | .7188 | 37.01 | 69.45 | 38.88 | 75.45 |
| 47/64 | .7344 | 41.42 | 69.45 | 43.52 | 75.45 |
| 3/4 | .7500 | 40.28 | 69.45 | 42.33 | 75.45 |
| 49/64 | .7656 | 44.21 | 78.50 | 46.45 | 84.50 |
| 25/32 | .7812 | 43.00 | 78.50 | 45.20 | 84.50 |
| 51/64 | .7969 | 51.84 | 82.20 | 54.49 | 88.20 |
| 13/16 | .8125 | 45.20 | 82.20 | 47.47 | 88.20 |
| 53/64 | .8281 | 53.65 | 89.50 | 56.37 | 95.50 |
| 27/32 | .8438 | 46.74 | 89.50 | 49.10 | 95.50 |
| 55/64 | .8594 | 55.69 | 89.50 | 58.52 | 95.50 |
| 7/8 | .8750 | 48.52 | 88.45 | 50.98 | 94.45 |
| 57/64 | .8906 | 58.14 | 94.25 | 61.12 | 100.25 |
| 29/32 | .9062 | 50.66 | 94.25 | 53.25 | 100.25 |
| 59/64 | .9219 | 62.21 | 94.25 | 65.40 | 100.25 |
| 15/16 | .9375 | 54.19 | 94.25 | 56.98 | 100.25 |
| 61/64 | .9531 | 65.75 | 105.20 | 69.09 | 111.20 |
| 31/32 | .9688 | 57.27 | 105.20 | 60.19 | 111.20 |
| 63/64 | .9844 | 73.19 | 114.35 | 76.92 | 120.35 |
| 1 | 1.0000 | 63.77 | 114.35 | 67.02 | 120.35 |

| Size | Dec. Equiv. | Price Each | | | |
|---------|-------------|---------------------|----------------------|--------------------|-----------------------|
| | | Standard 1/2" Shank | | Flatted Shank | |
| | | H.S. List No. 303 | Cobalt List No. 303C | H.S. List No. 303F | Cobalt List No. 303CF |
| 1-1/64 | 1.0156 | 87.73 | — | 92.18 | — |
| 1-1/32 | 1.0312 | 77.79 | 146.35 | 81.76 | 152.35 |
| 1-3/64 | 1.0469 | 79.96 | — | 84.05 | — |
| 1-1/16 | 1.0625 | 74.88 | 157.95 | 78.69 | 163.95 |
| 1-5/64 | 1.0781 | 82.59 | — | 86.79 | — |
| 1-3/32 | 1.0938 | 82.91 | 168.85 | 87.12 | 174.85 |
| 1-7/64 | 1.1094 | 88.94 | — | 93.46 | — |
| 1-1/8 | 1.1250 | 85.09 | 179.70 | 89.41 | 185.70 |
| 1-9/64 | 1.1406 | 90.87 | 199.00 | 95.50 | — |
| 1-5/32 | 1.1562 | 88.39 | 188.50 | 92.89 | 194.50 |
| 1-11/64 | 1.1719 | 97.56 | — | 102.55 | — |
| 1-3/16 | 1.1875 | 93.41 | 197.10 | 98.16 | 203.10 |
| 1-13/64 | 1.2031 | 105.05 | — | 110.41 | — |
| 1-7/32 | 1.2188 | 104.41 | 207.70 | 109.74 | 213.70 |
| 1-15/64 | 1.2344 | 107.34 | — | 112.82 | — |
| 1-1/4 | 1.2500 | 103.43 | 218.30 | 108.71 | 224.30 |
| 1-17/64 | 1.2656 | 124.40 | — | 130.40 | — |
| 1-9/32 | 1.2812 | 120.78 | 308.25 | 126.93 | 314.25 |
| 1-19/64 | 1.2969 | 132.50 | — | 138.50 | — |
| 1-5/16 | 1.3125 | 128.79 | 308.25 | 134.55 | 314.25 |
| 1-21/64 | 1.3281 | 142.70 | — | 148.70 | — |
| 1-11/32 | 1.3438 | 138.88 | 312.75 | 145.98 | 318.75 |
| 1-23/64 | 1.3594 | 155.50 | — | 161.50 | — |
| 1-3/8 | 1.3750 | 147.23 | 312.75 | 154.72 | 318.75 |
| 1-25/64 | 1.3906 | 175.40 | — | 181.40 | — |
| 1-13/32 | 1.4062 | 171.38 | 337.95 | 180.08 | 343.95 |
| 1-27/64 | 1.4219 | 175.40 | — | 181.40 | — |
| 1-7/16 | 1.4375 | 161.97 | 337.95 | 170.19 | 343.95 |
| 1-29/64 | 1.4531 | 195.66 | — | 203.66 | — |
| 1-15/32 | 1.4688 | 188.48 | 344.70 | 198.09 | 350.70 |
| 1-31/64 | 1.4844 | 195.66 | — | 203.66 | — |
| 1-1/2 | 1.5000 | 178.11 | 344.70 | 187.16 | 350.70 |



HIGH SPEED STEEL AND COBALT

SETS



| Pcs. Per Set | Set Description | Type of Holder | High Speed Steel Standard 1/2" Shanks | | Cobalt Standard 1/2" Shanks | |
|--------------|--|----------------|---------------------------------------|------------------------|-----------------------------|------------|
| | | | Set No. | Price Each | Set No. | Price Each |
| | | | 8 | 9/16" thru 1" by 16ths | Metal Index | 303SA |
| 8 | 1-1/16" thru 1-1/2" by 16ths | Wood Block | 303SB | 980.00 | 303CB | 2060.00 |
| 10 | 9/16" thru 1" by 16ths, 1-1/8" and 1-1/4" | Wood Block | 303SJ | 539.00 | 303CS | 1024.00 |
| 13 | 17/32" thru 3/4" by 32nds, 13/16", 7/8", 15/16", 31/32" and 1" | Wood Block | 303SD | 545.00 | 303CD | 959.00 |
| 33 | 1/2" thru 1" by 64ths | Wood Block | 303SG | 1460.00 | 303CG | 2485.00 |

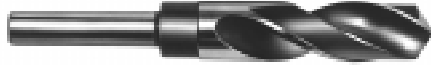
REDUCED SHANK DRILLS



MICHIGAN DRILL
Manufacturing Since 1963

1/2" SHANK — SILVER AND DEMING

- LIST NO. 303M — HIGH SPEED STEEL, 118° POINT
All Sizes 6" overall with 3" flute length



METRIC SIZES

| Size | Dec. Equiv. | Price Each | Size | Dec. Equiv. | Price Each | Size | Dec. Equiv. | Price Each |
|-------|-------------|------------|-------|-------------|------------|-------|-------------|------------|
| 13.00 | .5118 | 32.00 | 19.00 | .7480 | 46.16 | 25.00 | .9843 | 79.44 |
| 13.50 | .5315 | 33.50 | 19.50 | .7677 | 49.21 | 25.50 | 1.0039 | 95.18 |
| 14.00 | .5512 | 34.70 | 20.00 | .7874 | 55.87 | 26.00 | 1.0236 | 95.18 |
| 14.50 | .5709 | 36.60 | 20.50 | .8071 | 59.19 | 26.50 | 1.0433 | 95.18 |
| 15.00 | .5906 | 36.60 | 21.00 | .8268 | 59.19 | 27.00 | 1.0630 | 99.16 |
| 15.50 | .6102 | 36.60 | 21.50 | .8465 | 62.11 | 27.50 | 1.0827 | 99.16 |
| 16.00 | .6299 | 39.50 | 22.00 | .8661 | 62.11 | 28.00 | 1.1024 | 106.27 |
| 16.50 | .6496 | 39.50 | 22.50 | .8858 | 66.22 | 28.50 | 1.1220 | 106.27 |
| 17.00 | .6693 | 41.12 | 23.00 | .9055 | 66.22 | 29.00 | 1.1417 | 106.27 |
| 17.50 | .6890 | 42.40 | 23.50 | .9252 | 68.21 | 30.00 | 1.1811 | 116.90 |
| 18.00 | .7087 | 42.40 | 24.00 | .9449 | 71.10 | 30.50 | 1.2007 | 119.77 |
| 18.50 | .7283 | 46.16 | 24.50 | .9646 | 71.10 | 31.00 | 1.2205 | 125.50 |

1/2" SHANK — SILVER AND DEMING

- LIST NO. 303B — H.S. 135° SPLIT POINT
GOLD AND BLACK
All Sizes 6" overall with 3" flute length

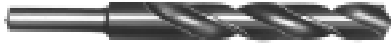


FRACTIONAL SIZES

| Size | Dec. Equiv. | Price Each |
|-------|-------------|------------|
| 17/32 | .5312 | 33.50 |
| 9/16 | .5625 | 36.00 |
| 19/32 | .5938 | 38.50 |
| 5/8 | .6250 | 42.00 |
| 21/32 | .6562 | 44.50 |
| 11/16 | .6875 | 48.00 |
| 23/32 | .7188 | 46.75 |
| 3/4 | .7500 | 52.00 |
| 13/16 | .8125 | 59.00 |
| 7/8 | .8750 | 61.00 |
| 15/16 | .9375 | 68.00 |
| 1 | 1.0000 | 77.00 |

1/4" SHANK — METAL WORKING

- ▶ LIST NO. 304 — HIGH SPEED STEEL, 118° POINT



FRACTIONAL SIZES

| Size | Dec. Equiv. | Price Each | Size | Dec. Equiv. | Price Each |
|-------|-------------|------------|-------|-------------|------------|
| 17/64 | .2656 | 7.97 | 25/64 | .3906 | 13.50 |
| 9/32 | .2812 | 7.97 | 13/32 | .4062 | 12.32 |
| 19/64 | .2969 | 8.25 | 27/64 | .4219 | 14.50 |
| 5/16 | .3125 | 8.25 | 7/16 | .4375 | 13.81 |
| 21/64 | .3281 | 9.45 | 29/64 | .4531 | 17.20 |
| 11/32 | .3438 | 9.45 | 15/32 | .4688 | 15.75 |
| 23/64 | .3594 | 11.50 | 31/64 | .4844 | 17.50 |
| 3/8 | .3750 | 10.59 | 1/2 | .5000 | 16.37 |

3/4" SHANK — BORING MILL AND SCREW MACHINE

- LIST NO. 306 — HIGH SPEED STEEL, 118° POINT
- LIST NO. 306C — COBALT, 135° NOTCHED POINT



All sizes 6" overall with 3" flute length.

3/8" SHANK — METAL WORKING

- ▶ LIST NO. 308 — HIGH SPEED STEEL, 118° POINT
- LIST NO. 308B — H.S. 135° NOTCHED POINT
- LIST NO. 308C — COBALT, 135° NOTCHED POINT



| Size | Dec. Equiv. | Price Each | | |
|-------|-------------|-------------------|--------------------|----------------------|
| | | H.S. List No. 308 | H.S. List No. 308B | Cobalt List No. 308C |
| 25/64 | .3906 | 13.89 | — | 24.95 |
| 13/32 | .4062 | 13.89 | — | 25.50 |
| 27/64 | .4219 | 14.86 | — | 29.22 |
| 7/16 | .4375 | 13.94 | — | 29.90 |
| 29/64 | .4531 | 17.63 | — | 32.40 |
| 15/32 | .4688 | 16.99 | — | 32.96 |
| 31/64 | .4844 | 17.63 | — | 33.50 |
| 1/2 | .5000 | 16.53 | — | 33.50 |
| 33/64 | .5156 | 30.30 | — | 50.50 |
| 17/32 | .5312 | 29.50 | — | 52.50 |
| 35/64 | .5469 | 32.10 | — | 53.95 |
| 9/16 | .5625 | 32.10 | 35.00 | 53.95 |
| 37/64 | .5781 | 35.40 | — | 53.95 |
| 19/32 | .5938 | 34.50 | — | 56.27 |
| 39/64 | .6094 | 39.95 | — | 58.44 |
| 5/8 | .6250 | 38.77 | 41.00 | 58.44 |
| 41/64 | .6406 | 40.44 | — | 63.11 |
| 21/32 | .6562 | 40.44 | — | 63.11 |
| 43/64 | .6719 | 41.92 | — | 65.25 |
| 11/16 | .6875 | 41.92 | 44.50 | 65.25 |
| 45/64 | .7031 | 42.66 | — | 68.11 |
| 23/32 | .7188 | 42.66 | — | 68.11 |
| 47/64 | .7344 | 46.02 | — | 69.74 |
| 3/4 | .7500 | 47.90 | 51.00 | 69.74 |

SET NO. 308A 3/8" SHANK H.S. DRILL SET

29 Piece Set
Contains 1 piece of each:
1/16" thru 3/8" by 64ths
(Shanks same size as cutting diameters) and
25/64" thru 1/2" by 64ths
(With 3/8" shanks)
Supplied in metal case.
SET PRICE — \$199.00

SET NO. 308D 3/8" SHANK H.S. DRILL SET

8 Piece Set
Contains 1 piece of each:
3/8, 13/32, 7/16, 15/32, 1/2,
17/32, 9/16, 5/8.
Supplied in wood block.
SET PRICE — \$173.00

| Size | Dec. Equiv. | Price Each | |
|----------|-------------|-------------------|----------------------|
| | | H.S. List No. 306 | Cobalt List No. 306C |
| 25/32 | .7812 | 52.20 | 82.50 |
| 13/16 | .8125 | 54.70 | 85.70 |
| 27/32 | .8438 | 58.85 | 90.70 |
| 7/8 | .8750 | 60.92 | 94.40 |
| 29/32 | .9062 | 62.88 | 103.20 |
| 15/16 | .9375 | 67.40 | 110.50 |
| 31/32 | .9688 | 69.99 | 116.70 |
| 1 | 1.0000 | 71.51 | 121.20 |
| 1- 1/32 | 1.0312 | 85.56 | 155.60 |
| 1- 1/16 | 1.0625 | 85.56 | 165.12 |
| 1- 3/32 | 1.0938 | 91.21 | 178.60 |
| 1- 1/8 | 1.1250 | 95.41 | 185.12 |
| 1- 5/32 | 1.1562 | 97.24 | 192.22 |
| 1- 3/16 | 1.1875 | 106.75 | 210.06 |
| 1- 7/32 | 1.2188 | 115.41 | 215.40 |
| 1- 1/4 | 1.2500 | 117.69 | 225.20 |
| 1- 9/32 | 1.2812 | 132.34 | 312.25 |
| 1- 5/16 | 1.3125 | 137.55 | 312.25 |
| 1- 11/32 | 1.3438 | 146.60 | 315.00 |
| 1- 3/8 | 1.3750 | 152.30 | 315.00 |
| 1- 13/32 | 1.4062 | 160.91 | 340.30 |
| 1- 7/16 | 1.4375 | 169.71 | 340.30 |
| 1- 15/32 | 1.4688 | 176.78 | 350.60 |
| 1- 1/2 | 1.5000 | 181.81 | 350.60 |
| 1- 17/32 | 1.5312 | 199.26 | — |
| 1- 9/16 | 1.5625 | 194.94 | 385.00 |
| 1- 19/32 | 1.5938 | 231.80 | — |
| 1- 5/8 | 1.6250 | 216.75 | 430.00 |
| 1- 21/32 | 1.6562 | 265.19 | — |
| 1- 11/16 | 1.6875 | 248.64 | 438.16 |
| 1- 23/32 | 1.7188 | 275.12 | — |
| 1- 3/4 | 1.7500 | 251.32 | 499.90 |
| 1- 25/32 | 1.7812 | 299.20 | — |
| 1- 13/16 | 1.8125 | 281.67 | 549.80 |
| 1- 27/32 | 1.8438 | 306.41 | — |
| 1- 7/8 | 1.8750 | 287.74 | 574.77 |
| 1- 29/32 | 1.9062 | 321.50 | — |
| 1- 15/16 | 1.9375 | 302.38 | 599.69 |
| 1- 31/32 | 1.9688 | 342.65 | — |
| 2 | 2.0000 | 313.82 | 639.60 |

HIGH SPEED SETS

SET NO. 306A
5 Piece Set
Contains 1 piece of each:
1", 1-1/8, 1-1/4, 1-3/8, 1-1/2
Supplied in wood block.
SET PRICE — \$625.00

SET NO. 306B
5 Piece Set
Contains 1 piece of each:
1", 1-1/4, 1-1/2, 1-3/4, 2"
Supplied in wood block.
SET PRICE — \$939.00

COBALT SETS

SET NO. 306D
5 Piece Set
Contains 1 piece of each:
1", 1-1/8, 1-1/4, 1-3/8, 1-1/2
Supplied in wood block.
SET PRICE — \$1185.00

SET NO. 306E
5 Piece Set
Contains 1 piece of each:
1", 1-1/4, 1-1/2, 1-3/4, 2"
Supplied in wood block.
SET PRICE — \$1825.00



HIGH SPEED STEEL

BODY DRILLS

Body Drills are intended primarily for use in hand held, air or electric drill motors, in sheet metal, thin wall tubing or any other shallow hole drilling. Because of their short flute design and heavy web construction, they are considerably more rigid and durable than Jobber or Screw Machine Lengths. Breakage is significantly reduced or eliminated and tool life is greatly increased.

● LIST NO. 650S

SINGLE END

● LIST NO. 650F



STYLE S 135° split point is used in hand or machine drilling without guide bushings, and where burring is not a problem. This point centers quickly and may be used successfully in tougher, harder materials.

STYLE F fishtail point is used in hand drilling thin material or machine drilling where the ratio of hole size to material thickness is very large, and where burr free holes are desired. A guide bushing must be used to center the drill point.

| Size | Dec. Equiv. | Price Each | | | | | |
|--------|-------------|------------|---------|------------|---------|---------|---------|
| | | 2" OAL | | 2-1/2" OAL | | 3" OAL | |
| | | Style S | Style F | Style S | Style F | Style S | Style F |
| 3/64 | .0469 | — | — | 1.50 | 2.47 | — | — |
| 47 | .0785 | 1.55 | 2.52 | — | — | — | — |
| 44 | .0860 | 1.63 | 2.60 | — | — | — | — |
| 36 | .1065 | 1.65 | 2.62 | 1.73 | 2.70 | — | — |
| 7/64 | .1094 | — | — | — | — | 1.94 | 2.91 |
| 32 | .1160 | — | — | — | — | 1.94 | 2.91 |
| 31 | .1200 | 1.91 | 2.88 | — | — | — | — |
| 1/8 | .1250 | 1.91 | 2.88 | 1.96 | 2.93 | 2.04 | 3.01 |
| 3.25mm | .1280 | — | — | — | — | 2.23 | 3.21 |
| 30 | .1285 | 1.91 | 2.88 | — | — | 2.04 | 3.01 |
| 3.30mm | .1299 | — | — | — | — | 2.23 | 3.20 |
| 29 | .1360 | 1.94 | 2.91 | — | — | 2.23 | 3.21 |
| 28 | .1405 | 1.94 | 2.91 | 2.15 | 3.12 | 2.23 | 3.21 |
| 9/64 | .1406 | 1.94 | 2.91 | 2.15 | 3.12 | 2.23 | 3.21 |
| 27 | .1440 | 2.05 | 3.02 | — | — | — | — |
| 26 | .1470 | 2.19 | 3.16 | — | — | — | — |
| 25 | .1495 | 2.19 | 3.16 | 2.47 | 3.44 | — | — |
| 3.8mm | .1496 | 2.19 | 3.16 | — | — | — | — |
| 24 | .1520 | — | — | 2.56 | 3.53 | — | — |
| 5/32 | .1562 | 2.19 | 3.16 | 2.56 | 3.53 | 2.59 | 3.56 |
| 22 | .1570 | — | — | — | — | 2.59 | 3.56 |
| 21 | .1590 | 2.39 | 3.36 | — | — | 2.70 | 3.67 |

| Size | Dec. Equiv. | Price Each | | | | | | | |
|---------|-------------|------------|---------|------------|---------|---------|---------|---------|---------|
| | | 2" OAL | | 2-1/2" OAL | | 3" OAL | | 4" OAL | |
| | | Style S | Style F | Style S | Style F | Style S | Style F | Style S | Style F |
| 20 | .1610 | 2.39 | 3.36 | — | — | 2.70 | 3.67 | — | — |
| 18 | .1695 | 2.39 | 3.36 | 2.59 | 3.56 | 2.83 | 3.80 | — | — |
| 11/64 | .1719 | — | — | — | — | 2.83 | 3.80 | 3.18 | 4.15 |
| 13 | .1850 | 2.39 | 3.36 | — | — | — | — | — | — |
| 3/16 | .1875 | 2.39 | 3.36 | 2.63 | 3.60 | 2.83 | 3.80 | — | — |
| 8 | .1990 | 2.56 | 3.53 | — | — | — | — | — | — |
| 13/64 | .2031 | — | — | 3.01 | 3.98 | — | — | — | — |
| 7/32 | .2188 | — | — | 3.16 | 4.13 | 3.42 | 4.39 | — | — |
| 15/64 | .2344 | — | — | 3.26 | 4.23 | — | — | — | — |
| 6.00mm | .2362 | 3.18 | 4.15 | — | — | — | — | — | — |
| 1/4 | .2500 | 3.18 | 4.48 | 3.15 | 4.45 | 3.69 | 4.99 | 3.95 | 5.25 |
| F | .2570 | — | — | — | — | 4.05 | 5.35 | — | — |
| 17/64 | .2656 | — | — | — | — | 4.25 | 5.55 | — | — |
| 9/32 | .2812 | — | — | — | — | 4.65 | 5.95 | — | — |
| 5/16 | .3125 | — | — | — | — | 4.88 | 6.18 | — | — |
| 11/32 | .3438 | — | — | — | — | 6.15 | 7.45 | — | — |
| 3/8 | .3750 | — | — | — | — | 7.36 | 8.66 | — | — |
| 13/32 | .4062 | — | — | — | — | 8.51 | 10.26 | — | — |
| 27/64 | .4219 | — | — | — | — | 9.00 | 10.30 | — | — |
| 7/16 | .4375 | — | — | — | — | 9.15 | 10.90 | — | — |
| 12.40mm | .4881 | 7.50 | — | — | — | — | — | — | — |
| 1/2 | .5000 | — | — | — | — | 11.70 | 13.45 | — | — |

HIGH SPEED STEEL AND COBALT

DOUBLE END — 135° SPLIT POINT

▶ LIST NO. 655S—HIGH SPEED STEEL

▶ LIST NO. 655SC—COBALT STEEL

▶ LIST NO. 655T—H.S. TiN COATED



This drill is recommended for all sheet metal drilling applications. The short overall length and short flute length provide rigidity and reduce breakage.

| Size | Dec. Equiv. | Price Each |
|------|-------------|------------|
| 1/16 | .0625 | 2.74 |
| 5/64 | .0781 | 2.74 |
| 3/32 | .0938 | 2.74 |
| 7/64 | .1094 | 2.74 |
| 31 | .1200 | 2.74 |
| 1/8 | .1250 | 2.89 |
| 30 | .1285 | 2.89 |
| 9/64 | .1406 | 3.00 |

| Size | Dec. Equiv. | Price Each |
|-------|-------------|------------|
| 27 | .1440 | 3.15 |
| 26 | .1470 | 3.15 |
| 25 | .1495 | 3.25 |
| 5/32 | .1562 | 3.25 |
| 21 | .1590 | 3.75 |
| 20 | .1610 | 3.75 |
| 11/64 | .1719 | 3.75 |
| 3/16 | .1875 | 3.94 |

| Size | Dec. Equiv. | Price Each |
|-------|-------------|------------|
| 7 | .2010 | 4.50 |
| 7/32 | .2188 | 5.07 |
| 1/4 | .2500 | 6.05 |
| 17/64 | .2656 | 7.50 |
| 9/32 | .2812 | 7.90 |
| 19/64 | .2969 | 9.00 |
| 5/16 | .3125 | 9.50 |

| Size | Dec. Equiv. | Price Each | |
|------|-------------|-----------------------|--------------------------|
| | | Cobalt List No. 655SC | TiN Coated List No. 655T |
| 1/8 | .1250 | 4.50 | 5.68 |
| 30 | .1285 | 4.50 | 5.68 |

HIGH SPEED STEEL

SHEETERS DRILLS



135° LONG SWEEP SPLIT POINT

● LIST NO. 670S

These drills are commonly used in drilling automotive and truck bodies, metal building and other sheet metal applications. The 135° long sweep split point insures easy centering while the short overall length reduces breakage in hand held drilling operations.

| Size | Overall Length | Price Each |
|------|----------------|------------|
| 5/32 | 4-1/2 | 4.86 |
| #10 | 4-1/8 | 5.20 |
| #8 | 1-3/8 | 2.88 |
| #8 | 3-5/8 | 4.73 |
| #8 | 4-1/2 | 5.20 |

| Size | Overall Length | Price Each |
|------|----------------|------------|
| 7/32 | 6 | 7.60 |
| #1 | 2-1/4 | 3.37 |
| #1 | 3 | 3.71 |
| #1 | 3-5/8 | 4.66 |
| #1 | 3-7/8 | 4.95 |

| Size | Overall Length | Price Each |
|------|----------------|------------|
| #1 | 4-1/2 | 5.70 |
| #1 | 6 | 7.69 |
| #1 | 7-1/4 | 9.47 |
| .231 | 3 | 4.02 |
| .231 | 4-1/2 | 5.98 |

AIRCRAFT EXTENSION DRILLS

SPLIT POINT



MICHIGAN DRILL®
Manufacturing Since 1969

SET NO. 906SFA
29 Piece H.S. 6" OAL
Fractional Set
1/16 - 1/2 x 64ths
Supplied in Metal Stand
SET PRICE — \$435.00



- ▶ LIST NO. 906 — HIGH SPEED STEEL, 6 INCH OVERALL LENGTH
- LIST NO. 906C — COBALT, 6 INCH OVERALL LENGTH



SET NO. 912SF
29 Piece H.S. 12" OAL
Fractional Set
1/16 - 1/2 x 64ths
Supplied in Metal Stand
SET PRICE — \$642.00

- ▶ LIST NO. 912 — HIGH SPEED STEEL, 12 INCH OVERALL LENGTH
- LIST NO. 912C — COBALT, 12 INCH OVERALL LENGTH



Sizes smaller than 1/16 are NOT Split.

| Size | Dec. Equiv. | Flute Length | Price Each | | | |
|-------|-------------|--------------|-------------------------|--------------------------|-----------------------------|------------------------------|
| | | | H.S 6" OAL List No. 906 | H.S 12" OAL List No. 912 | Cobalt 6" OAL List No. 906C | Cobalt 12" OAL List No. 912C |
| 65 | .0350 | 5/8 | 10.25 | — | — | — |
| 60 | .0400 | 11/16 | 10.25 | 17.22 | 13.55 | — |
| 59 | .0410 | 11/16 | 10.44 | 17.22 | 13.55 | — |
| 58 | .0420 | 11/16 | 10.44 | 17.22 | 13.55 | — |
| 57 | .0430 | 3/4 | 10.25 | 15.31 | 13.55 | — |
| 56 | .0465 | 3/4 | 8.48 | 15.31 | 13.55 | — |
| 3/64 | .0469 | 3/4 | 9.18 | 16.97 | 13.55 | — |
| 55 | .0520 | 7/8 | 8.48 | 15.31 | 13.55 | — |
| 54 | .0550 | 7/8 | 8.48 | 15.31 | 13.55 | — |
| 53 | .0595 | 7/8 | 8.48 | 15.31 | 13.55 | — |
| 1/16 | .0625 | 7/8 | 4.50 | 13.75 | 6.27 | 17.12 |
| 52 | .0635 | 7/8 | 4.50 | 15.12 | 6.16 | 17.12 |
| 51 | .0670 | 1 | 4.50 | 15.12 | 6.16 | 17.12 |
| 50 | .0700 | 1 | 4.50 | 16.20 | 6.16 | 17.12 |
| 49 | .0730 | 1 | 4.50 | 16.20 | 6.06 | 17.12 |
| 48 | .0760 | 1 | 4.50 | 16.20 | 6.06 | 17.12 |
| 5/64 | .0781 | 1 | 4.50 | 13.75 | 6.34 | 17.12 |
| 47 | .0785 | 1 | 4.50 | 16.20 | 6.34 | 17.12 |
| 46 | .0810 | 1-1/8 | 4.50 | 16.20 | 6.34 | 17.12 |
| 45 | .0820 | 1-1/8 | 4.50 | 16.20 | 6.34 | 17.12 |
| 44 | .0860 | 1-1/8 | 4.50 | 16.20 | 6.34 | 17.12 |
| 43 | .0890 | 1-1/4 | 4.50 | 16.20 | 6.34 | 17.12 |
| 42 | .0935 | 1-1/4 | 3.50 | 12.62 | 5.11 | 17.12 |
| 3/32 | .0938 | 1-1/4 | 3.50 | 13.75 | 4.93 | 14.60 |
| 41 | .0960 | 1-3/8 | 3.50 | 12.41 | 5.11 | 15.53 |
| 40 | .0980 | 1-3/8 | 3.50 | 12.40 | 4.88 | 15.83 |
| 39 | .0995 | 1-3/8 | 3.84 | 12.40 | 5.43 | 15.08 |
| 38 | .1015 | 1-7/16 | 3.84 | 12.40 | 5.43 | 15.08 |
| 37 | .1040 | 1-7/16 | 3.84 | 12.40 | 5.43 | 15.08 |
| 36 | .1065 | 1-7/16 | 3.84 | 12.40 | 5.43 | 15.08 |
| 7/64 | .1094 | 1-1/2 | 3.84 | 10.70 | 5.55 | 15.00 |
| 35 | .1100 | 1-1/2 | 3.84 | 12.40 | 5.43 | 15.08 |
| 34 | .1110 | 1-1/2 | 3.84 | 12.40 | 5.43 | 15.08 |
| 33 | .1130 | 1-1/2 | 3.84 | 12.40 | 5.43 | 16.59 |
| 32 | .1160 | 1-5/8 | 3.84 | 12.40 | 5.43 | 15.08 |
| 31 | .1200 | 1-5/8 | 3.84 | 12.40 | 5.43 | 15.08 |
| 1/8 | .1250 | 1-5/8 | 3.70 | 10.50 | 5.30 | 15.24 |
| 30 | .1285 | 1-5/8 | 3.84 | 12.40 | 5.26 | 15.84 |
| 29 | .1360 | 1-3/4 | 4.70 | 12.40 | 6.68 | 16.59 |
| 28 | .1405 | 1-3/4 | 4.70 | 12.40 | 6.68 | 17.12 |
| 9/64 | .1406 | 1-3/4 | 4.50 | 10.50 | 6.28 | 17.12 |
| 27 | .1440 | 1-7/8 | 4.70 | 12.40 | 6.68 | 17.12 |
| 26 | .1470 | 1-7/8 | 4.70 | 12.40 | 6.68 | 15.59 |
| 25 | .1495 | 1-7/8 | 4.70 | 12.40 | 6.68 | 15.59 |
| 24 | .1520 | 2 | 4.70 | 12.40 | 6.68 | 15.59 |
| 23 | .1540 | 2 | 4.70 | 12.40 | 6.68 | 15.59 |
| 5/32 | .1562 | 2 | 4.50 | 10.50 | 6.22 | 15.59 |
| 22 | .1570 | 2 | 4.70 | 12.40 | 6.68 | 15.84 |
| 21** | .1590 | 2-1/8 | 4.70 | 12.40 | 6.49 | 15.84 |
| 20 | .1610 | 2-1/8 | 4.70 | 12.40 | 6.49 | 15.84 |
| 19 | .1660 | 2-1/8 | 5.20 | 13.50 | 7.39 | 18.08 |
| 18 | .1695 | 2-1/8 | 5.20 | 13.50 | 7.39 | 16.44 |
| 11/64 | .1719 | 2-1/8 | 4.90 | 11.90 | 6.89 | 16.96 |
| 17 | .1730 | 2-3/16 | 5.20 | 13.50 | 7.39 | 16.44 |
| 16 | .1770 | 2-3/16 | 5.20 | 13.50 | 7.39 | 18.09 |
| 15 | .1800 | 2-3/16 | 5.20 | 13.50 | 7.39 | 16.44 |
| 14 | .1820 | 2-3/16 | 5.20 | 13.50 | 7.39 | 16.44 |
| 13 | .1850 | 2-5/16 | 5.20 | 13.50 | 7.39 | 16.44 |
| 3/16 | .1875 | 2-5/16 | 4.90 | 11.90 | 6.76 | 16.50 |

| Size | Dec. Equiv. | Flute Length | Price Each | | | |
|-------|-------------|--------------|-------------------------|--------------------------|-----------------------------|------------------------------|
| | | | H.S 6" OAL List No. 906 | H.S 12" OAL List No. 912 | Cobalt 6" OAL List No. 906C | Cobalt 12" OAL List No. 912C |
| 12 | .1890 | 2-5/16 | 5.20 | 13.50 | 7.39 | 16.44 |
| 11 | .1910 | 2-5/16 | 5.20 | 13.50 | 7.39 | 17.26 |
| 10 | .1935 | 2-7/16 | 5.60 | 13.50 | 7.69 | 17.26 |
| 9 | .1960 | 2-7/16 | 5.97 | 13.50 | 8.52 | 18.00 |
| 8 | .1990 | 2-7/16 | 6.10 | 15.00 | 8.52 | 18.38 |
| 7 | .2010 | 2-7/16 | 6.10 | 15.00 | 8.84 | 18.38 |
| 13/64 | .2031 | 2-7/16 | 6.00 | 13.74 | 8.55 | 21.59 |
| 6 | .2040 | 2-1/2 | 6.10 | 15.00 | 8.84 | 21.59 |
| 5 | .2055 | 2-1/2 | 6.10 | 15.00 | 8.84 | 21.59 |
| 4 | .2090 | 2-1/2 | 6.10 | 15.00 | 8.84 | 21.59 |
| 3 | .2130 | 2-1/2 | 6.10 | 15.00 | 8.84 | 21.59 |
| 7/32 | .2188 | 2-1/2 | 6.10 | 13.74 | 8.47 | 19.47 |
| 2 | .2210 | 2-5/8 | 6.90 | 15.00 | 9.76 | 21.75 |
| 1 | .2280 | 2-5/8 | 6.90 | 16.20 | 9.76 | 21.75 |
| A | .2340 | 2-5/8 | 9.25 | 18.94 | 14.88 | — |
| 15/64 | .2344 | 2-5/8 | 6.50 | 15.00 | 9.28 | 22.40 |
| B | .2380 | 2-3/4 | 9.25 | 18.94 | 14.88 | — |
| C | .2420 | 2-3/4 | 9.25 | 18.94 | 14.88 | — |
| D | .2460 | 2-3/4 | 9.25 | 18.94 | 14.88 | 31.40 |
| 1/4 | .2500 | 2-3/4 | 6.50 | 14.55 | 10.60 | 19.90 |
| F | .2570 | 2-7/8 | 10.20 | 22.50 | 16.95 | 37.13 |
| G | .2610 | 2-7/8 | 15.65 | 22.58 | — | — |
| 17/64 | .2656 | 2-7/8 | 13.65 | 17.80 | 24.02 | 30.60 |
| H | .2660 | 2-7/8 | 16.87 | 22.58 | — | — |
| I | .2720 | 2-7/8 | 16.87 | 22.58 | — | 37.13 |
| J | .2770 | 2-7/8 | 16.87 | 22.58 | — | — |
| K | .2810 | 2-15/16 | 16.87 | 22.58 | 28.36 | — |
| 9/32 | .2812 | 2-15/16 | 14.18 | 18.23 | 25.50 | 36.00 |
| L | .2900 | 2-15/16 | 19.13 | 23.82 | — | — |
| M | .2950 | 3-1/16 | 19.13 | 23.82 | — | — |
| 19/64 | .2969 | 3-1/16 | 16.65 | 21.50 | 29.97 | 36.00 |
| N | .3020 | 3-1/16 | 21.54 | 25.96 | — | — |
| 5/16 | .3125 | 3-3/16 | 18.08 | 23.67 | 32.40 | 39.00 |
| O | .3160 | 3-3/16 | 22.51 | 27.84 | — | 45.95 |
| P | .3230 | 3-5/16 | 22.51 | 27.84 | — | — |
| 21/64 | .3281 | 3-5/16 | 19.63 | 25.20 | — | 37.80 |
| Q | .3320 | 3-7/16 | 22.69 | 29.13 | — | 48.07 |
| R | .3390 | 3-7/16 | 22.69 | 30.43 | 38.50 | — |
| 11/32 | .3438 | 3-7/16 | 19.42 | 25.20 | — | 48.00 |
| S | .3480 | 3-1/2 | 25.00 | 31.84 | 44.00 | — |
| T | .3580 | 3-1/2 | 25.00 | 31.84 | 44.00 | — |
| 23/64 | .3594 | 3-1/2 | 21.80 | 28.00 | 39.24 | 48.70 |
| U | .3680 | 3-5/8 | 26.43 | 31.84 | 45.95 | 57.00 |
| 3/8 | .3750 | 3-5/8 | 22.20 | 29.00 | — | 48.70 |
| V | .3770 | 3-5/8 | 27.92 | 33.77 | — | — |
| W | .3860 | 3-3/4 | 27.92 | 33.77 | — | — |
| 25/64 | .3906 | 3-3/4 | 24.79 | 31.82 | — | 50.70 |
| X | .3970 | 3-3/4 | 27.92 | 35.71 | 44.68 | 55.85 |
| Y | .4040 | 3-7/8 | 27.92 | 35.71 | — | — |
| 13/32 | .4062 | 3-7/8 | 23.90 | 30.75 | — | 51.80 |
| Z | .4130 | 3-7/8 | 29.93 | 37.69 | — | — |
| 27/64 | .4219 | 3-15/16 | 26.58 | 34.00 | — | 57.71 |
| 7/16 | .4375 | 4-1/16 | 26.89 | 34.00 | — | 59.96 |
| 29/64 | .4531 | 4-3/16 | 29.48 | 37.83 | — | 62.58 |
| 15/32 | .4688 | 4-5/16 | 30.48 | 39.12 | — | 62.58 |
| 31/64 | .4844 | 4-3/8 | 31.69 | 40.50 | — | 64.50 |
| 1/2 | .5000 | 4-1/2 | 32.19 | 41.20 | 39.70 | 64.50 |

**Fast spiral also available from stock.



HIGH SPEED STEEL

EXTRA LENGTH DRILLS

STRAIGHT SHANK, 118° POINT



A Large Stock of Every Size for Immediate Delivery.

**FEATURING THE WORLD'S
LARGEST AND MOST
EXTENSIVE INVENTORY OF
USA MANUFACTURED
EXTRA LONG DRILLS!**

These drills are utilized in deep hole or long reach drilling applications in many kinds of materials for either hand held or fixed spindle use.

| Size | Decimal Equivalent | Price Each |
|---------------------------|--------------------|------------|
| 6" OAL—4" FLT | | |
| ▶ LIST NO. 208A | | |
| 1/16 | .0625 | 11.65 |
| 5/64 | .0781 | 11.65 |
| 3/32 | .0938 | 9.45 |
| 7/64 | .1094 | 9.45 |
| 1/8 | .1250 | 9.45 |
| 9/64 | .1406 | 9.45 |
| 5/32 | .1562 | 9.45 |
| 11/64 | .1719 | 9.45 |
| 3/16 | .1875 | 9.45 |
| 8" OAL—5-1/2" FLT | | |
| ▶ LIST NO. 208 | | |
| 3/32 | .0938 | 21.03 |
| 7/64 | .1094 | 17.76 |
| 1/8 | .1250 | 16.92 |
| 9/64 | .1406 | 16.18 |
| 5/32 | .1562 | 18.49 |
| 11/64 | .1719 | 18.62 |
| 3/16 | .1875 | 18.81 |
| 13/64 | .2031 | 20.34 |
| 7/32 | .2188 | 24.45 |
| 15/64 | .2344 | 20.21 |
| 1/4 | .2500 | 19.32 |
| F | .2570 | 19.37 |
| 17/64 | .2656 | 19.39 |
| 9/32 | .2812 | 21.35 |
| 19/64 | .2969 | 22.10 |
| 5/16 | .3125 | 22.65 |
| 21/64 | .3281 | 29.05 |
| 11/32 | .3438 | 27.33 |
| 23/64 | .3594 | 26.83 |
| 3/8 | .3750 | 23.05 |
| 25/64 | .3906 | 30.49 |
| 13/32 | .4062 | 28.90 |
| 27/64 | .4219 | 38.50 |
| 7/16 | .4375 | 32.56 |
| 29/64 | .4531 | 33.19 |
| 15/32 | .4688 | 37.88 |
| 31/64 | .4844 | 44.50 |
| 1/2 | .5000 | 33.51 |
| 9" OAL—6-1/2" FLT | | |
| ▶ LIST NO. 209 | | |
| 27/64 | .4219 | 38.50 |
| 7/16 | .4375 | 38.50 |
| 29/64 | .4531 | 39.90 |
| 15/32 | .4688 | 39.90 |
| 31/64 | .4844 | 36.50 |
| 1/2 | .5000 | 36.50 |
| 17/32 | .5312 | 46.00 |
| 10" OAL—7-1/2" FLT | | |
| ▶ LIST NO. 208B | | |
| 1/8 | .1250 | 20.14 |
| 9/64 | .1406 | 23.75 |
| 5/32 | .1562 | 23.43 |
| 11/64 | .1719 | 21.80 |
| 3/16 | .1875 | 21.80 |
| 13/64 | .2031 | 27.75 |
| 7/32 | .2188 | 26.80 |
| 15/64 | .2344 | 26.80 |
| 1/4 | .2500 | 23.29 |
| 17/64 | .2656 | 24.50 |
| 9/32 | .2812 | 26.76 |
| 19/64 | .2969 | 27.20 |
| 5/16 | .3125 | 25.20 |
| 21/64 | .3281 | 31.50 |
| 11/32 | .3438 | 29.80 |
| 23/64 | .3594 | 29.12 |
| 3/8 | .3750 | 27.67 |
| 25/64 | .3906 | 34.55 |
| 13/32 | .4062 | 34.55 |
| 27/64 | .4219 | 36.00 |
| 11 mm | .4331 | 38.50 |
| 7/16 | .4375 | 36.00 |
| 29/64 | .4531 | 39.90 |
| 15/32 | .4688 | 41.32 |
| 31/64 | .4844 | 49.50 |
| 1/2 | .5000 | 34.88 |
| 17/32 | .5312 | 46.15 |
| 9/16 | .5625 | 59.42 |

| Size | Decimal Equivalent | Price Each |
|-----------------------|--------------------|------------|
| 12" OAL—9" FLT | | |
| ▶ LIST NO. 212 | | |
| 7/64 | .1094 | 25.50 |
| 1/8 | .1250 | 25.50 |
| 9/64 | .1406 | 25.50 |
| 5/32 | .1562 | 27.70 |
| 11/64 | .1719 | 28.25 |
| 3/16 | .1875 | 29.00 |
| 13/64 | .2031 | 30.00 |
| 7/32 | .2188 | 31.10 |
| 15/64 | .2344 | 31.50 |
| 1/4 | .2500 | 31.50 |
| 17/64 | .2656 | 33.40 |
| 9/32 | .2812 | 33.40 |
| 19/64 | .2969 | 34.50 |
| 5/16 | .3125 | 34.50 |
| 21/64 | .3281 | 36.85 |
| 11/32 | .3438 | 36.85 |
| 23/64 | .3594 | 37.50 |
| 3/8 | .3750 | 37.50 |
| 25/64 | .3906 | 41.50 |
| 13/32 | .4062 | 41.50 |
| 27/64 | .4219 | 43.50 |
| 7/16 | .4375 | 43.50 |
| 29/64 | .4531 | 49.50 |
| 15/32 | .4688 | 49.50 |
| 31/64 | .4844 | 49.50 |
| 1/2 | .5000 | 49.50 |
| 33/64 | .5156 | 61.10 |
| 17/32 | .5312 | 61.10 |
| 35/64 | .5469 | 61.10 |
| 9/16 | .5625 | 61.10 |
| 37/64 | .5781 | 65.90 |
| 19/32 | .5938 | 65.90 |
| 39/64 | .6094 | 68.95 |
| 5/8 | .6250 | 68.95 |
| 41/64 | .6406 | 76.40 |
| 21/32 | .6562 | 76.40 |
| 43/64 | .6719 | 80.80 |
| 11/16 | .6875 | 80.80 |
| 45/64 | .7031 | 87.70 |
| 23/32 | .7188 | 87.70 |
| 47/64 | .7344 | 91.00 |
| 3/4 | .7500 | 91.00 |
| 49/64 | .7656 | 99.20 |
| 25/32 | .7812 | 99.20 |
| 51/64 | .7969 | 107.80 |
| 13/16 | .8125 | 107.80 |
| 53/64 | .8281 | 120.00 |
| 27/32 | .8438 | 120.00 |
| 55/64 | .8594 | 129.35 |
| 7/8 | .8750 | 129.35 |
| 57/64 | .8906 | 143.70 |
| 29/32 | .9062 | 143.70 |
| 59/64 | .9219 | 149.00 |
| 15/16 | .9375 | 149.00 |
| 61/64 | .9531 | 155.00 |
| 31/32 | .9688 | 155.00 |
| 63/64 | .9844 | 155.00 |
| 1 | 1.0000 | 155.00 |
| 12" OAL—9" FLT | | |
| ● LIST NO. 212M | | |
| Size mm | Decimal Equivalent | Price Each |
| 3.00 | .1181 | 27.50 |
| 4.00 | .1575 | 29.50 |
| 5.00 | .1968 | 32.75 |
| 6.00 | .2362 | 34.85 |
| 7.00 | .2756 | 37.25 |
| 8.00 | .3150 | 39.90 |
| 9.00 | .3543 | 42.00 |
| 10.00 | .3937 | 45.00 |
| 10.50 | .4134 | 47.50 |
| 11.00 | .4331 | 49.75 |
| 12.00 | .4724 | 54.00 |
| 13.00 | .5118 | 66.75 |
| 13.80 | .5433 | 70.00 |
| 14.00 | .5512 | 72.75 |
| 15.00 | .5906 | 75.00 |
| 16.00 | .6299 | 78.40 |
| 17.00 | .6693 | 87.70 |
| 17.50 | .6890 | 92.30 |
| 20.00 | .7874 | 115.60 |
| 22.50 | .8858 | 159.00 |



| Size | Decimal Equivalent | Price Each |
|------------------------|--------------------|------------|
| 15" OAL—11" FLT | | |
| ● LIST NO. 215 | | |
| 3/16 | .1875 | 39.81 |
| 7/32 | .2188 | 36.19 |
| 1/4 | .2500 | 38.72 |
| 9/32 | .2812 | 41.54 |
| 5/16 | .3125 | 44.46 |
| 11/32 | .3438 | 48.19 |
| 3/8 | .3750 | 46.89 |
| 13/32 | .4062 | 51.70 |
| 11 mm | .4331 | 59.75 |
| 7/16 | .4375 | 54.69 |
| 29/64 | .4531 | 58.00 |
| 15/32 | .4688 | 58.43 |
| 1/2 | .5000 | 65.12 |
| 17/32 | .5312 | 78.86 |
| 9/16 | .5625 | 78.03 |
| 19/32 | .5938 | 81.20 |
| 5/8 | .6250 | 83.69 |
| 21/32 | .6562 | 95.99 |
| 11/16 | .6875 | 102.92 |
| 23/32 | .7188 | 112.45 |
| 3/4 | .7500 | 116.01 |
| 25/32 | .7812 | 130.60 |
| 13/16 | .8125 | 143.63 |
| 7/8 | .8750 | 149.00 |
| 15/16 | .9375 | 159.00 |
| 1 | 1.0000 | 169.50 |

EXTRA LENGTH DRILLS, 1/2" SHANK

| Size | Decimal Equivalent | Price Each |
|----------------------------|--------------------|------------|
| 12" OAL—9" FLT | | |
| ● LIST NO. 212X — 1/2" SHK | | |
| 33/64 | .5156 | 65.93 |
| 17/32 | .5312 | 63.94 |
| 35/64 | .5469 | 65.94 |
| 9/16 | .5625 | 63.96 |
| 37/64 | .5781 | 70.15 |
| 19/32 | .5938 | 67.99 |
| 39/64 | .6094 | 73.16 |
| 5/8 | .6250 | 72.17 |
| 41/64 | .6406 | 76.04 |
| 21/32 | .6562 | 75.49 |
| 43/64 | .6719 | 83.66 |
| 11/16 | .6875 | 82.88 |
| 45/64 | .7031 | 88.84 |
| 23/32 | .7188 | 89.60 |
| 47/64 | .7344 | 98.43 |
| 3/4 | .7500 | 94.41 |
| 49/64 | .7656 | 106.72 |
| 25/32 | .7812 | 106.73 |
| 51/64 | .7969 | 112.93 |
| 13/16 | .8125 | 112.94 |
| 53/64 | .8281 | 124.66 |
| 27/32 | .8438 | 124.66 |
| 55/64 | .8594 | 136.70 |
| 7/8 | .8750 | 136.70 |
| 57/64 | .8906 | 152.92 |
| 29/32 | .9062 | 152.92 |
| 59/64 | .9219 | 160.00 |
| 15/16 | .9375 | 160.00 |
| 61/64 | .9531 | 167.04 |
| 31/32 | .9688 | 167.05 |
| 63/64 | .9844 | 175.44 |
| 1 | 1.0000 | 175.44 |

EXTRA LENGTH DRILLS

STRAIGHT SHANK, 118° POINT



A Large Stock of Every Size for Immediate Delivery.

| Size | Decimal Equivalent | Price Each |
|--------------------------|--------------------|------------|
| 18" OAL — 12" FLT | | |
| ● LIST NO. 218 | | |
| 1/8 | .1250 | 49.50 |
| 5/32 | .1562 | 49.50 |
| 3/16 | .1875 | 47.50 |
| 13/64 | .2031 | 47.50 |
| 7/32 | .2188 | 47.50 |
| 15/64 | .2344 | 47.50 |
| 1/4 | .2500 | 47.50 |
| 17/64 | .2656 | 53.50 |
| 9/32 | .2812 | 51.94 |
| 19/64 | .2969 | 53.86 |
| 5/16 | .3125 | 50.48 |
| 21/64 | .3281 | 57.06 |
| 11/32 | .3438 | 55.03 |
| 23/64 | .3594 | 57.06 |
| 3/8 | .3750 | 53.49 |
| 25/64 | .3906 | 61.82 |
| 13/32 | .4062 | 59.61 |
| 27/64 | .4219 | 66.63 |
| 11 mm | .4331 | 68.40 |
| 7/16 | .4375 | 62.45 |
| 29/64 | .4531 | 76.31 |
| 15/32 | .4688 | 73.59 |
| 31/64 | .4844 | 79.50 |
| 1/2 | .5000 | 74.50 |
| 33/64 | .5156 | 94.47 |
| 17/32 | .5312 | 91.10 |
| 35/64 | .5469 | 96.03 |
| 9/16 | .5625 | 92.60 |
| 37/64 | .5781 | 99.40 |
| 19/32 | .5938 | 95.85 |
| 39/64 | .6094 | 104.30 |
| 5/8 | .6250 | 100.59 |
| 41/64 | .6406 | 115.60 |
| 21/32 | .6562 | 111.17 |
| 43/64 | .6719 | 130.10 |
| 11/16 | .6875 | 119.09 |
| 45/64 | .7031 | 145.70 |
| 23/32 | .7188 | 130.17 |
| 47/64 | .7344 | 150.80 |
| 3/4 | .7500 | 138.02 |
| 49/64 | .7656 | 165.50 |
| 25/32 | .7812 | 153.95 |
| 51/64 | .7969 | 172.50 |
| 13/16 | .8125 | 159.83 |

| Size | Decimal Equivalent | Price Each |
|----------------------------|--------------------|------------|
| 18" OAL — 12" FLT | | |
| ● LIST NO. 218 | | |
| 53/64 | .8281 | 170.50 |
| 27/32 | .8438 | 170.50 |
| 55/64 | .8594 | 180.20 |
| 7/8 | .8750 | 164.88 |
| 57/64 | .8906 | 195.00 |
| 29/32 | .9062 | 195.00 |
| 59/64 | .9219 | 199.50 |
| 15/16 | .9375 | 173.41 |
| 61/64 | .9531 | 199.75 |
| 31/32 | .9688 | 199.78 |
| 63/64 | .9844 | 199.75 |
| 1 | 1.0000 | 183.85 |
| 1-1/8 | 1.1250 | 206.25 |
| 1-3/16 | 1.1875 | 249.50 |
| 1-1/4 | 1.2500 | 299.70 |
| 18" OAL — 12" FLT | | |
| ● LIST NO. 218X — 1/2" SHK | | |
| 33/64 | .5156 | 90.78 |
| 17/32 | .5312 | 101.11 |
| 35/64 | .5469 | 106.03 |
| 9/16 | .5625 | 102.60 |
| 37/64 | .5781 | 109.40 |
| 19/32 | .5938 | 105.86 |
| 39/64 | .6094 | 114.32 |
| 5/8 | .6250 | 110.56 |
| 41/64 | .6406 | 125.61 |
| 21/32 | .6562 | 127.18 |
| 43/64 | .6719 | 140.10 |
| 11/16 | .6875 | 129.10 |
| 45/64 | .7031 | 155.72 |
| 23/32 | .7188 | 140.17 |
| 47/64 | .7344 | 160.80 |
| 3/4 | .7500 | 148.02 |
| 49/64 | .7656 | 177.50 |
| 25/32 | .7812 | 165.95 |
| 51/64 | .7969 | 184.50 |
| 13/16 | .8125 | 171.58 |
| 53/64 | .8281 | 182.50 |
| 27/32 | .8438 | 182.50 |
| 55/64 | .8594 | 192.20 |
| 7/8 | .8750 | 176.88 |

| Size | Decimal Equivalent | Price Each |
|-----------------------------|--------------------|------------|
| 18" OAL — 12" FLT | | |
| ● LIST NO. 218X — 1/2" SHK | | |
| 57/64 | .8906 | 210.00 |
| 29/32 | .9062 | 210.00 |
| 59/64 | .9219 | 214.51 |
| 15/16 | .9375 | 188.41 |
| 61/64 | .9531 | 214.75 |
| 31/32 | .9688 | 214.75 |
| 63/64 | .9844 | 214.75 |
| 1 | 1.0000 | 198.85 |
| 24" OAL — 18" FLT | | |
| ● LIST NO. 224 | | |
| 1/4 | .2500 | 80.39 |
| 5/16 | .3125 | 82.69 |
| 3/8 | .3750 | 84.64 |
| 7/16 | .4375 | 98.90 |
| 1/2 | .5000 | 114.43 |
| 9/16 | .5625 | 152.95 |
| 5/8 | .6250 | 166.52 |
| 11/16 | .6875 | 194.35 |
| 3/4 | .7500 | 224.25 |
| 25/32 | .7812 | 234.60 |
| 13/16 | .8125 | 240.35 |
| 27/32 | .8438 | 252.43 |
| 7/8 | .8750 | 258.75 |
| 15/16 | .9375 | 270.25 |
| 1 | 1.0000 | 287.50 |
| 1-1/8 | 1.1250 | 308.20 |
| 1-3/16 | 1.1875 | 343.85 |
| 1-1/4 | 1.2500 | 413.43 |
| 48" OAL — 5-1/2" FLT | | |
| ● LIST NO. 248 | | |
| 1/4 | .2500 | 76.13 |
| 5/16 | .3125 | 82.77 |
| 3/8 | .3750 | 93.73 |
| 7/16 | .4375 | 102.58 |
| 1/2 | .5000 | 112.48 |
| 5/8 | .6250 | 158.36 |
| 3/4 | .7500 | 217.12 |

HIGH SPEED SETS

| Overall Length | Set Description | Pieces Per Set | Set No. | Set Price |
|----------------|--------------------------|----------------|---------|-----------|
| 8" | 1/8" thru 3/8" by 64ths | 17 | 208ES | 365.00 |
| 10" | 3/16" thru 1/2" by 64ths | 21 | 210ES | 654.27 |
| 12" | 1/8" thru 1/2" by 64ths | 25 | 212ES | 918.00 |

| Overall Length | Set Description | Pieces Per Set | Set No. | Set Price |
|----------------|--------------------------|----------------|---------|-----------|
| 12" 1/2 shk | 17/32" thru 1" by 32nds | 16 | 212XES | 1511.92 |
| 18" | 3/16" thru 1/2" by 32nds | 11 | 218ES | 623.00 |
| 18" 1/2 shk | 17/32" thru 1" by 32nds | 16 | 218XES | 2473.52 |

EXTRA LENGTH COBALT DRILLS

STRAIGHT SHANK, 135° SPLIT POINT

| Size | Decimal Equivalent | Price Each |
|----------------------------|--------------------|------------|
| 8" OAL — 5-1/2" FLT | | |
| ● LIST NO. 208C | | |
| 3/32 | .0938 | 38.91 |
| 1/8 | .1250 | 31.30 |
| 5/32 | .1562 | 34.21 |
| 3/16 | .1875 | 34.80 |
| 1/4 | .2500 | 35.74 |
| 17/64 | .2656 | 35.87 |
| 9/32 | .2812 | 39.50 |
| 19/64 | .2969 | 40.89 |
| 5/16 | .3125 | 41.90 |
| 11/32 | .3438 | 50.56 |
| 3/8 | .3750 | 42.64 |

| Size | Decimal Equivalent | Price Each |
|----------------------------|--------------------|------------|
| 8" OAL — 5-1/2" FLT | | |
| ● LIST NO. 208C | | |
| 13/32 | .4062 | 53.47 |
| 27/64 | .4219 | 71.23 |
| 7/16 | .4375 | 60.24 |
| 9" OAL — 6-1/2" FLT | | |
| ● LIST NO. 209C | | |
| 27/64* | .4219 | 38.27 |
| 11" OAL — 9" FLT | | |
| ● LIST NO. 211C | | |
| 9/16* | .5625 | 68.43 |

| Size | Decimal Equivalent | Price Each |
|-------------------------|--------------------|------------|
| 12" OAL — 9" FLT | | |
| ● LIST NO. 212C | | |
| 1/8 | .1250 | 37.52 |
| 3/16 | .1875 | 42.44 |
| 1/4 | .2500 | 47.40 |
| 5/16 | .3125 | 50.89 |
| 3/8 | .3750 | 54.65 |
| 7/16 | .4375 | 65.03 |
| 1/2 | .5000 | 72.98 |
| 9/16 | .5625 | 90.89 |
| 5/8 | .6250 | 102.56 |
| 43/64 | .6719 | 128.95 |
| 11/16 | .6875 | 120.23 |

* Subject to prior sale



Featuring the largest and most diverse stock of USA made taper shank drills in the world

HIGH SPEED STEEL

TAPER SHANK DRILLS

GENERAL PURPOSE

▶ LIST NO. 200 — STANDARD SHANKS, 118° POINT



SET NO. 200A

16 Piece H.S. Fractional Set

33/64 - 3/4 x 64ths in Metal Index

SET PRICE — \$780.00

FRACTIONAL SIZES

| Size | Dec. Equiv. | Flute Length | Overall Length | Morse Taper No. | Price Each |
|---------|-------------|--------------|----------------|-----------------|------------|
| 1/16 | .0625 | 1-1/4 | 4-5/8 | 1 | 21.40 |
| 5/64 | .0781 | 1-3/8 | 4-3/4 | 1 | 21.40 |
| 1/8 | .1250 | 1-7/8 | 5-1/8 | 1 | 17.83 |
| 9/64 | .1406 | 2-1/8 | 5-3/8 | 1 | 18.73 |
| 5/32 | .1562 | 2-1/8 | 5-3/8 | 1 | 18.00 |
| 11/64 | .1719 | 2-1/2 | 5-3/4 | 1 | 18.73 |
| 3/16 | .1875 | 2-1/2 | 5-3/4 | 1 | 12.42 |
| 13/64 | .2031 | 2-3/4 | 6 | 1 | 13.92 |
| 7/32 | .2188 | 2-3/4 | 6 | 1 | 13.42 |
| 15/64 | .2344 | 2-7/8 | 6-1/8 | 1 | 15.92 |
| 1/4 | .2500 | 2-7/8 | 6-1/8 | 1 | 13.79 |
| 17/64 | .2656 | 3 | 6-1/4 | 1 | 15.40 |
| 9/32 | .2812 | 3 | 6-1/4 | 1 | 14.79 |
| 19/64 | .2969 | 3-1/8 | 6-3/8 | 1 | 19.07 |
| 5/16 | .3125 | 3-1/8 | 6-3/8 | 1 | 14.79 |
| 21/64 | .3281 | 3-1/4 | 6-1/2 | 1 | 20.90 |
| 11/32 | .3438 | 3-1/4 | 6-1/2 | 1 | 21.87 |
| 23/64 | .3594 | 3-1/2 | 6-3/4 | 1 | 24.21 |
| 3/8 | .3750 | 3-1/2 | 6-3/4 | 1 | 23.07 |
| 25/64 | .3906 | 3-5/8 | 7 | 1 | 25.08 |
| 13/32 | .4062 | 3-5/8 | 7 | 1 | 23.29 |
| 27/64 | .4219 | 3-7/8 | 7-1/4 | 1 | 26.75 |
| 7/16 | .4375 | 3-7/8 | 7-1/4 | 1 | 25.81 |
| 29/64 | .4531 | 4-1/8 | 7-1/2 | 1 | 29.44 |
| 15/32 | .4688 | 4-1/8 | 7-1/2 | 1 | 29.60 |
| 31/64 | .4844 | 4-3/8 | 8-1/4 | 2 | 33.27 |
| 1/2 | .5000 | 4-3/8 | 8-1/4 | 2 | 30.25 |
| 33/64 | .5156 | 4-5/8 | 8-1/2 | 2 | 36.26 |
| 17/32 | .5312 | 4-5/8 | 8-1/2 | 2 | 33.83 |
| 35/64 | .5469 | 4-7/8 | 8-3/4 | 2 | 39.46 |
| 9/16 | .5625 | 4-7/8 | 8-3/4 | 2 | 36.88 |
| 37/64 | .5781 | 4-7/8 | 8-3/4 | 2 | 41.91 |
| 19/32 | .5938 | 4-7/8 | 8-3/4 | 2 | 39.66 |
| 39/64 | .6094 | 4-7/8 | 8-3/4 | 2 | 43.85 |
| 5/8 | .6250 | 4-7/8 | 8-3/4 | 2 | 40.30 |
| 41/64 | .6406 | 5-1/8 | 9 | 2 | 48.31 |
| 21/32 | .6562 | 5-1/8 | 9 | 2 | 44.96 |
| 43/64 | .6719 | 5-3/8 | 9-1/4 | 2 | 51.84 |
| 11/16 | .6875 | 5-3/8 | 9-1/4 | 2 | 46.82 |
| 45/64 | .7031 | 5-5/8 | 9-1/2 | 2 | 53.99 |
| 23/32 | .7188 | 5-5/8 | 9-1/2 | 2 | 50.14 |
| 47/64 | .7344 | 5-7/8 | 9-3/4 | 2 | 57.33 |
| 3/4 | .7500 | 5-7/8 | 9-3/4 | 2 | 54.61 |
| 49/64 | .7656 | 6 | 9-7/8 | 2 | 68.92 |
| 25/32 | .7812 | 6 | 9-7/8 | 2 | 65.89 |
| 51/64 | .7969 | 6-1/8 | 10-3/4 | 3 | 75.47 |
| 13/16 | .8125 | 6-1/8 | 10-3/4 | 3 | 67.55 |
| 53/64 | .8281 | 6-1/8 | 10-3/4 | 3 | 78.74 |
| 27/32 | .8438 | 6-1/8 | 10-3/4 | 3 | 73.29 |
| 55/64 | .8594 | 6-1/8 | 10-3/4 | 3 | 81.47 |
| 7/8 | .8750 | 6-1/8 | 10-3/4 | 3 | 74.99 |
| 57/64 | .8906 | 6-1/8 | 10-3/4 | 3 | 83.27 |
| 29/32 | .9062 | 6-1/8 | 10-3/4 | 3 | 80.06 |
| 59/64 | .9219 | 6-1/8 | 10-3/4 | 3 | 84.29 |
| 15/16 | .9375 | 6-1/8 | 10-3/4 | 3 | 75.30 |
| 61/64 | .9531 | 6-3/8 | 11 | 3 | 86.59 |
| 31/32 | .9688 | 6-3/8 | 11 | 3 | 82.69 |
| 63/64 | .9844 | 6-3/8 | 11 | 3 | 91.95 |
| 1 | 1.0000 | 6-3/8 | 11 | 3 | 84.12 |
| 1-1/64 | 1.0156 | 6-1/2 | 11-1/8 | 3 | 104.60 |
| 1-1/32 | 1.0312 | 6-1/2 | 11-1/8 | 3 | 92.46 |
| 1-3/64 | 1.0469 | 6-5/8 | 11-1/4 | 3 | 109.91 |
| 1-1/16 | 1.0625 | 6-5/8 | 11-1/4 | 3 | 96.59 |
| 1-5/64 | 1.0781 | 6-7/8 | 12-1/2 | 4 | 126.78 |
| 1-3/32 | 1.0938 | 6-7/8 | 12-1/2 | 4 | 114.21 |
| 1-7/64 | 1.1094 | 7-1/8 | 12-3/4 | 4 | 131.81 |
| 1-1/8 | 1.1250 | 7-1/8 | 12-3/4 | 4 | 118.73 |
| 1-9/64 | 1.1406 | 7-1/4 | 12-7/8 | 4 | 139.70 |
| 1-5/32 | 1.1562 | 7-1/4 | 12-7/8 | 4 | 124.24 |
| 1-11/64 | 1.1719 | 7-3/8 | 13 | 4 | 141.25 |
| 1-3/16 | 1.1875 | 7-3/8 | 13 | 4 | 129.36 |
| 1-13/64 | 1.2031 | 7-1/2 | 13-1/8 | 4 | 151.16 |
| 1-7/32 | 1.2188 | 7-1/2 | 13-1/8 | 4 | 139.21 |
| 1-15/64 | 1.2344 | 7-7/8 | 13-1/2 | 4 | 164.87 |
| 1-1/4 | 1.2500 | 7-7/8 | 13-1/2 | 4 | 145.57 |
| 1-17/64 | 1.2656 | 8-1/2 | 14-1/8 | 4 | 190.07 |
| 1-9/32 | 1.2812 | 8-1/2 | 14-1/8 | 4 | 181.52 |
| 1-19/64 | 1.2969 | 8-5/8 | 14-1/4 | 4 | 202.37 |
| 1-5/16 | 1.3125 | 8-5/8 | 14-1/4 | 4 | 182.66 |
| 1-21/64 | 1.3281 | 8-3/4 | 14-3/8 | 4 | 209.23 |
| 1-11/32 | 1.3438 | 8-3/4 | 14-3/8 | 4 | 194.88 |
| 1-23/64 | 1.3594 | 8-7/8 | 14-1/2 | 4 | 213.76 |
| 1-3/8 | 1.3750 | 8-7/8 | 14-1/2 | 4 | 195.93 |
| 1-25/64 | 1.3906 | 9 | 14-5/8 | 4 | 219.64 |
| 1-13/32 | 1.4062 | 9 | 14-5/8 | 4 | 211.69 |

| Size | Dec. Equiv. | Flute Length | Overall Length | Morse Taper No. | Price Each |
|---------|-------------|--------------|----------------|-----------------|------------|
| 1-27/64 | 1.4219 | 9-1/8 | 14-3/4 | 4 | 227.46 |
| 1-7/16 | 1.4375 | 9-1/8 | 14-3/4 | 4 | 211.80 |
| 1-29/64 | 1.4531 | 9-1/4 | 14-7/8 | 4 | 239.22 |
| 1-15/32 | 1.4688 | 9-1/4 | 14-7/8 | 4 | 228.05 |
| 1-31/64 | 1.4844 | 9-3/8 | 15 | 4 | 245.50 |
| 1-1/2 | 1.5000 | 9-3/8 | 15 | 4 | 225.22 |
| 1-33/64 | 1.5156 | 9-3/8 | 16-3/8 | 5 | 316.00 |
| 1-17/32 | 1.5312 | 9-3/8 | 16-3/8 | 5 | 262.80 |
| 1-35/64 | 1.5469 | 9-5/8 | 16-5/8 | 5 | 336.00 |
| 1-9/16 | 1.5625 | 9-5/8 | 16-5/8 | 5 | 272.73 |
| 1-37/64 | 1.5781 | 9-7/8 | 16-7/8 | 5 | 358.00 |
| 1-19/32 | 1.5938 | 9-7/8 | 16-7/8 | 5 | 297.44 |
| 1-39/64 | 1.6094 | 10 | 17 | 5 | 375.00 |
| 1-5/8 | 1.6250 | 10 | 17 | 5 | 294.59 |
| 1-41/64 | 1.6406 | 10-1/8 | 17-1/8 | 5 | 399.50 |
| 1-21/32 | 1.6562 | 10-1/8 | 17-1/8 | 5 | 319.86 |
| 1-43/64 | 1.6719 | 10-1/8 | 17-1/8 | 5 | 415.00 |
| 1-11/16 | 1.6875 | 10-1/8 | 17-1/8 | 5 | 324.73 |
| 1-45/64 | 1.7031 | 10-1/8 | 17-1/8 | 5 | 428.50 |
| 1-23/32 | 1.7188 | 10-1/8 | 17-1/8 | 5 | 344.08 |
| 1-47/64 | 1.7344 | 10-1/8 | 17-1/8 | 5 | 412.50 |
| 1-3/4 | 1.7500 | 10-1/8 | 17-1/8 | 5 | 347.75 |
| 1-49/64 | 1.7656 | 10-1/8 | 17-1/8 | 5 | 414.00 |
| 1-25/32 | 1.7812 | 10-1/8 | 17-1/8 | 5 | 364.79 |
| 1-51/64 | 1.7969 | 10-1/8 | 17-1/8 | 5 | 416.50 |
| 1-13/16 | 1.8125 | 10-1/8 | 17-1/8 | 5 | 370.65 |
| 1-53/64 | 1.8281 | 10-1/8 | 17-1/8 | 5 | 460.50 |
| 1-27/32 | 1.8438 | 10-1/8 | 17-1/8 | 5 | 390.79 |
| 1-55/64 | 1.8594 | 10-3/8 | 17-3/8 | 5 | 465.75 |
| 1-7/8 | 1.8750 | 10-3/8 | 17-3/8 | 5 | 387.85 |
| 1-57/64 | 1.8906 | 10-3/8 | 17-3/8 | 5 | 475.00 |
| 1-29/32 | 1.9062 | 10-3/8 | 17-3/8 | 5 | 408.65 |
| 1-59/64 | 1.9219 | 10-3/8 | 17-3/8 | 5 | 485.50 |
| 1-15/16 | 1.9375 | 10-3/8 | 17-3/8 | 5 | 417.25 |
| 1-61/64 | 1.9531 | 10-3/8 | 17-3/8 | 5 | 490.70 |
| 1-31/32 | 1.9688 | 10-3/8 | 17-3/8 | 5 | 430.55 |
| 1-63/64 | 1.9844 | 10-3/8 | 17-3/8 | 5 | 495.25 |
| 2 | 2.0000 | 10-3/8 | 17-3/8 | 5 | 433.35 |
| 2-1/64 | 2.0156 | 10-3/8 | 17-3/8 | 5 | 520.00 |
| 2-1/32 | 2.0312 | 10-3/8 | 17-3/8 | 5 | 459.52 |
| 2-3/64 | 2.0469 | 10-1/4 | 17-3/8 | 5 | 525.00 |
| 2-1/16 | 2.0625 | 10-1/4 | 17-3/8 | 5 | 458.60 |
| 2-3/32 | 2.0938 | 10-1/4 | 17-3/8 | 5 | 489.87 |
| 2-1/8 | 2.1250 | 10-1/4 | 17-3/8 | 5 | 485.17 |
| 2-5/32 | 2.1562 | 10-1/4 | 17-3/8 | 5 | 522.43 |
| 2-3/16 | 2.1875 | 10-1/4 | 17-3/8 | 5 | 526.44 |
| 2-7/32 | 2.2188 | 10-1/8 | 17-3/8 | 5 | 550.83 |
| 2-1/4 | 2.2500 | 10-1/8 | 17-3/8 | 5 | 549.63 |
| 2-9/32 | 2.2812 | 10-1/8 | 17-3/8 | 5 | 610.00 |
| 2-5/16 | 2.3125 | 10-1/8 | 17-3/8 | 5 | 592.48 |
| 2-11/32 | 2.3438 | 10-1/8 | 17-3/8 | 5 | 628.50 |
| 2-3/8 | 2.3750 | 10-1/8 | 17-3/8 | 5 | 609.76 |
| 2-13/32 | 2.4062 | 11-1/4 | 18-3/4 | 5 | 799.00 |
| 2-7/16 | 2.4375 | 11-1/4 | 18-3/4 | 5 | 777.62 |
| 2-15/32 | 2.4688 | 11-1/4 | 18-3/4 | 5 | 822.50 |
| 2-1/2 | 2.5000 | 11-1/4 | 18-3/4 | 5 | 795.06 |
| 2-17/32 | 2.5312 | 11-7/8 | 19-1/2 | 5 | 895.45 |
| 2-9/16 | 2.5625 | 11-7/8 | 19-1/2 | 5 | 876.56 |
| 2-19/32 | 2.5938 | 11-7/8 | 19-1/2 | 5 | 1050.00 |
| 2-5/8 | 2.6250 | 11-7/8 | 19-1/2 | 5 | 931.19 |
| 2-21/32 | 2.6562 | 12-3/4 | 20-3/8 | 5 | 1090.00 |
| 2-11/16 | 2.6875 | 12-3/4 | 20-3/8 | 5 | 1016.88 |
| 2-23/32 | 2.7188 | 12-3/4 | 20-3/8 | 5 | 1145.25 |
| 2-3/4 | 2.7500 | 12-3/4 | 20-3/8 | 5 | 1036.17 |
| 2-25/32 | 2.7812 | 13-3/8 | 21-1/8 | 5 | 1180.00 |
| 2-13/16 | 2.8125 | 13-3/8 | 21-1/8 | 5 | 1138.08 |
| 2-27/32 | 2.8438 | 13-3/8 | 21-1/8 | 5 | 1229.60 |
| 2-7/8 | 2.8750 | 13-3/8 | 21-1/8 | 5 | 1190.23 |
| 2-29/32 | 2.9062 | 13-3/8 | 21-1/8 | 5 | 1350.00 |
| 2-15/16 | 2.9375 | 14 | 21-3/4 | 5 | 1265.49 |
| 2-31/32 | 2.9688 | 14 | 21-3/4 | 5 | 1427.50 |
| 3 | 3.0000 | 14 | 21-3/4 | 5 | 1309.18 |
| 3-1/16 | 3.0625 | 14-5/8 | 24-1/2 | 6 | 1736.00 |
| 3-1/8 | 3.1250 | 14-5/8 | 24-1/2 | 6 | 1736.00 |
| 3-3/16 | 3.1875 | 14-5/8 | 24-1/2 | 6 | 1981.00 |
| 3-1/4 | 3.2500 | 15-1/2 | 25-1/2 | 6 | 1981.00 |
| 3-5/16 | 3.3125 | 15-1/2 | 25-1/2 | 6 | 2190.00 |
| 3-3/8 | 3.3750 | 15-1/2 | 25-1/2 | 6 | 2342.50 |
| 3-7/16 | 3.4375 | 15-1/2 | 25-1/2 | 6 | 2946.00 |
| 3-1/2 | 3.5000 | 16-3/8 | 26-1/2 | 6 | 2705.00 |
| 3-5/8 | 3.6250 | 16-3/8 | 26-1/2 | 6 | 3052.00 |
| 3-3/4 | 3.7500 | 16-3/8 | 26-1/2 | 6 | 3740.00 |
| 3-7/8 | 3.8750 | 16-3/8 | 26-1/2 | 6 | 4312.00 |
| 4 | 4.0000 | 17-1/2 | 27-1/2 | 6 | 4712.00 |

Many sizes heavy duty taper shank and chipbreaker type taper shanks available - please inquire.

TAPER SHANK DRILLS

► LIST NO. 202 — SHANK LARGER THAN STANDARD, 118° POINT



FRACTIONAL SIZES

| Size | Dec. Equiv. | Flute Length | Overall Length | Morse Taper No. | Price Each |
|-------|-------------|--------------|----------------|-----------------|------------|
| 21/64 | .3281 | 3-1/2 | 7-3/8 | 2 | 27.55 |
| 23/64 | .3594 | 3-1/2 | 7-3/8 | 2 | 31.90 |
| 3/8 | .3750 | 3-1/2 | 7-3/8 | 2 | 31.48 |
| 25/64 | .3906 | 3-5/8 | 7-1/2 | 2 | 34.64 |
| 13/32 | .4062 | 3-5/8 | 7-1/2 | 2 | 32.79 |
| 27/64 | .4219 | 3-7/8 | 7-3/4 | 2 | 34.77 |
| 7/16 | .4375 | 3-7/8 | 7-3/4 | 2 | 37.68 |
| 29/64 | .4531 | 4-1/8 | 8 | 2 | 37.69 |
| 15/32 | .4688 | 4-1/8 | 8 | 2 | 37.49 |
| 41/64 | .6406 | 5-1/8 | 9-3/4 | 3 | 66.09 |
| 21/32 | .6562 | 5-1/8 | 9-3/4 | 3 | 63.34 |

| Size | Dec. Equiv. | Flute Length | Overall Length | Morse Taper No. | Price Each |
|--------|-------------|--------------|----------------|-----------------|------------|
| 43/64 | .6719 | 5-3/8 | 10 | 3 | 70.93 |
| 11/16 | .6875 | 5-3/8 | 10 | 3 | 69.45 |
| 45/64 | .7031 | 5-5/8 | 10-1/4 | 3 | 76.76 |
| 23/32 | .7188 | 5-5/8 | 10-1/4 | 3 | 74.47 |
| 47/64 | .7344 | 5-7/8 | 10-1/2 | 3 | 83.08 |
| 3/4 | .7500 | 5-7/8 | 10-1/2 | 3 | 77.99 |
| 49/64 | .7656 | 6 | 10-5/8 | 3 | 92.39 |
| 25/32 | .7812 | 6 | 10-5/8 | 3 | 85.74 |
| 1 | 1.0000 | 6-3/8 | 12 | 4 | 124.91 |
| 1-1/32 | 1.0312 | 6-1/2 | 12-1/8 | 4 | 140.78 |
| 1-1/16 | 1.0625 | 6-5/8 | 12-1/4 | 4 | 147.10 |

► LIST NO. 203 — SHANK SMALLER THAN STANDARD, 118° POINT



FRACTIONAL SIZES

| Size | Dec. Equiv. | Flute Length | Overall Length | Morse Taper No. | Price Each |
|---------|-------------|--------------|----------------|-----------------|------------|
| 31/64 | .4844 | 4-3/8 | 7-3/4 | 1 | 39.64 |
| 1/2 | .5000 | 4-3/8 | 7-3/4 | 1 | 34.61 |
| 33/64 | .5156 | 4-5/8 | 8 | 1 | 43.48 |
| 17/32 | .5312 | 4-5/8 | 8 | 1 | 39.93 |
| 35/64 | .5469 | 4-7/8 | 8-1/4 | 1 | 46.46 |
| 9/16 | .5625 | 4-7/8 | 8-1/4 | 1 | 43.59 |
| 37/64 | .5781 | 4-7/8 | 8-1/4 | 1 | 49.25 |
| 21/32 | .6562 | 5-1/8 | 9-3/4 | 1 | 53.95 |
| 51/64 | .7969 | 6-1/8 | 10 | 2 | 85.03 |
| 13/16 | .8125 | 6-1/8 | 10 | 2 | 77.71 |
| 53/64 | .8281 | 6-1/8 | 10 | 2 | 90.53 |
| 27/32 | .8438 | 6-1/8 | 10 | 2 | 83.12 |
| 55/64 | .8594 | 6-1/8 | 10 | 2 | 94.42 |
| 7/8 | .8750 | 6-1/8 | 10 | 2 | 85.41 |
| 57/64 | .8906 | 6-1/8 | 10 | 2 | 97.36 |
| 29/32 | .9062 | 6-1/8 | 10 | 2 | 89.39 |
| 1 | 1.0000 | 6-1/4 | 10-1/8 | 2 | 95.50 |
| 1-5/64 | 1.0781 | 6-7/8 | 11-1/2 | 3 | 150.65 |
| 1-3/32 | 1.0938 | 6-7/8 | 11-1/2 | 3 | 135.77 |
| 1-7/64 | 1.1094 | 7-1/8 | 11-3/4 | 3 | 152.83 |
| 1-1/8 | 1.1250 | 7-1/8 | 11-3/4 | 3 | 141.05 |
| 1-9/64 | 1.1406 | 7-1/4 | 11-7/8 | 3 | 162.48 |
| 1-5/32 | 1.1562 | 7-1/4 | 11-7/8 | 3 | 153.65 |
| 1-11/64 | 1.1719 | 7-3/8 | 12 | 3 | 167.77 |
| 1-3/16 | 1.1875 | 7-3/8 | 12 | 3 | 156.75 |
| 1-13/64 | 1.2031 | 7-1/2 | 12-1/8 | 3 | 180.03 |
| 1-7/32 | 1.2188 | 7-1/2 | 12-1/8 | 3 | 168.35 |
| 1-15/64 | 1.2344 | 7-7/8 | 12-1/2 | 3 | 196.23 |
| 1-1/4 | 1.2500 | 7-7/8 | 12-1/2 | 3 | 184.78 |
| 1-9/32 | 1.2812 | 8-1/2 | 13-1/8 | 3 | 225.80 |
| 1-5/16 | 1.3125 | 8-5/8 | 13-1/4 | 3 | 228.70 |
| 1-11/32 | 1.3438 | 8-3/4 | 13-3/8 | 3 | 239.90 |
| 1-3/8 | 1.3750 | 8-7/8 | 13-1/2 | 3 | 240.87 |
| 1-13/32 | 1.4062 | 9 | 13-5/8 | 3 | 265.69 |
| 1-7/16 | 1.4375 | 9-1/8 | 13-3/4 | 3 | 265.69 |
| 1-15/32 | 1.4688 | 9-1/4 | 13-7/8 | 3 | 290.32 |
| 1-1/2 | 1.5000 | 9-3/8 | 14 | 3 | 279.50 |
| 1-33/64 | 1.5156 | 9-3/8 | 15 | 4 | 316.08 |
| 1-17/32 | 1.5312 | 9-3/8 | 15 | 4 | 295.51 |
| 1-35/64 | 1.5469 | 9-5/8 | 15-1/4 | 4 | 336.29 |
| 1-9/16 | 1.5625 | 9-5/8 | 15-1/4 | 4 | 316.22 |
| 1-37/64 | 1.5781 | 9-7/8 | 15-1/2 | 4 | 357.37 |
| 1-19/32 | 1.5938 | 9-7/8 | 15-1/2 | 4 | 337.98 |
| 1-39/64 | 1.6094 | 10 | 15-5/8 | 4 | 371.13 |
| 1-5/8 | 1.6250 | 10 | 15-5/8 | 4 | 345.64 |
| 1-41/64 | 1.6406 | 10-1/8 | 15-3/4 | 4 | 400.07 |
| 1-21/32 | 1.6562 | 10-1/8 | 15-3/4 | 4 | 387.23 |
| 1-43/64 | 1.6719 | 10-1/8 | 15-3/4 | 4 | 415.28 |
| 1-11/16 | 1.6875 | 10-1/8 | 15-3/4 | 4 | 387.50 |
| 1-45/64 | 1.7031 | 10-1/8 | 15-3/4 | 4 | 427.72 |

| Size | Dec. Equiv. | Flute Length | Overall Length | Morse Taper No. | Price Each |
|---------|-------------|--------------|----------------|-----------------|------------|
| 1-23/32 | 1.7188 | 10-1/8 | 15-3/4 | 4 | 396.41 |
| 1-47/64 | 1.7344 | 10-3/8 | 16-1/4 | 4 | 412.60 |
| 1-3/4 | 1.7500 | 10-3/8 | 16-1/4 | 4 | 376.06 |
| 1-49/64 | 1.7656 | 10-3/8 | 16-1/4 | 4 | 430.00 |
| 1-25/32 | 1.7812 | 10-3/8 | 16-1/4 | 4 | 414.67 |
| 1-51/64 | 1.7969 | 10-3/8 | 16-1/4 | 4 | 432.50 |
| 1-13/16 | 1.8125 | 10-3/8 | 16-1/4 | 4 | 414.67 |
| 1-53/64 | 1.8281 | 10-3/8 | 16-1/4 | 4 | 465.70 |
| 1-27/32 | 1.8438 | 10-3/8 | 16-1/4 | 4 | 441.85 |
| 1-55/64 | 1.8594 | 10-1/2 | 16-1/2 | 4 | 479.90 |
| 1-7/8 | 1.8750 | 10-1/2 | 16-1/2 | 4 | 439.38 |
| 1-57/64 | 1.8906 | 10-1/2 | 16-1/2 | 4 | 495.16 |
| 1-29/32 | 1.9062 | 10-1/2 | 16-1/2 | 4 | 474.99 |
| 1-59/64 | 1.9219 | 10-5/8 | 16-5/8 | 4 | 495.40 |
| 1-15/16 | 1.9375 | 10-5/8 | 16-5/8 | 4 | 468.71 |
| 1-61/64 | 1.9531 | 10-5/8 | 16-5/8 | 4 | 499.92 |
| 1-31/32 | 1.9688 | 10-5/8 | 16-5/8 | 4 | 483.25 |
| 1-63/64 | 1.9844 | 10-5/8 | 16-5/8 | 4 | 507.26 |
| 2 | 2.0000 | 10-5/8 | 16-5/8 | 4 | 470.81 |
| 2-1/32 | 2.0312 | 10-3/8 | 16-1/4 | 4 | 499.95 |
| 2-1/16 | 2.0625 | 10-1/4 | 16-1/4 | 4 | 499.95 |
| 2-3/32 | 2.0938 | 10-1/4 | 16-1/4 | 4 | 544.12 |
| 2-1/8 | 2.1250 | 10-1/4 | 16-1/4 | 4 | 544.12 |
| 2-5/32 | 2.1562 | 10-1/4 | 16-1/4 | 4 | 579.19 |
| 2-3/16 | 2.1875 | 10-1/4 | 16-1/4 | 4 | 579.19 |
| 2-7/32 | 2.2188 | 10-1/8 | 16-1/8 | 4 | 610.10 |
| 2-1/4 | 2.2500 | 10-1/8 | 16-1/8 | 4 | 610.10 |
| 2-9/32 | 2.2812 | 10-1/8 | 16-1/8 | 4 | 625.42 |
| 2-5/16 | 2.3125 | 10-1/8 | 16-1/8 | 4 | 659.44 |
| 2-11/32 | 2.3438 | 10-1/8 | 16-1/8 | 4 | 634.18 |
| 2-3/8 | 2.3750 | 10-1/8 | 16-1/8 | 4 | 670.20 |
| 2-13/32 | 2.4062 | 11-1/4 | 17-1/4 | 4 | 826.00 |
| 2-7/16 | 2.4375 | 11-1/4 | 17-1/4 | 4 | 849.96 |
| 2-15/32 | 2.4688 | 11-1/4 | 17-1/4 | 4 | 845.36 |
| 2-1/2 | 2.5000 | 11-1/4 | 17-1/4 | 4 | 874.22 |
| 2-5/8 | 2.6250 | 11-7/8 | 18 | 4 | 1027.22 |
| 2-3/4 | 2.7500 | 12-3/4 | 19-1/8 | 4 | 1155.86 |
| 3-1/16 | 3.0625 | 14-1/4 | 22 | 5 | 1893.00 |
| 3-1/8 | 3.1250 | 14-1/4 | 22 | 5 | 1997.00 |
| 3-3/16 | 3.1875 | 14-1/4 | 22 | 5 | 1997.00 |
| 3-1/4 | 3.2500 | 15-1/4 | 23 | 5 | 1997.00 |
| 3-5/16 | 3.3125 | 15-1/4 | 23 | 5 | 2333.00 |
| 3-3/8 | 3.3750 | 15-1/4 | 23 | 5 | 2466.00 |
| 3-7/16 | 3.4375 | 15-1/4 | 23 | 5 | 2653.00 |
| 3-1/2 | 3.5000 | 16-1/4 | 24 | 5 | 2866.00 |
| 3-5/8 | 3.6250 | 16-1/4 | 24 | 5 | 3200.00 |
| 3-3/4 | 3.7500 | 16-1/4 | 24 | 5 | 3740.00 |
| 3-7/8 | 3.8750 | 16-1/4 | 24 | 5 | 4150.00 |
| 4 | 4.0000 | 16-1/2 | 24-1/4 | 5 | 4420.00 |



HIGH SPEED STEEL

METRIC TAPER SHANK DRILLS

▶ LIST NO. 200M



MILLIMETER SIZES

| Size | Dec. Equiv. | Morse Taper No. | Flute Length | Overall Length | Price Each |
|-------|-------------|-----------------|--------------|----------------|------------|
| 3.00 | .1181 | 1 | 1-7/8 | 5-1/8 | 18.16 |
| 3.20 | .1260 | 1 | 1-7/8 | 5-1/8 | 19.00 |
| 3.50 | .1378 | 1 | 2-1/8 | 5-3/8 | 18.16 |
| 3.80 | .1496 | 1 | 2-1/8 | 5-3/8 | 19.00 |
| 4.00 | .1575 | 1 | 2-1/8 | 5-3/8 | 18.16 |
| 4.20 | .1654 | 1 | 2-1/2 | 5-3/4 | 19.00 |
| 4.50 | .1772 | 1 | 2-1/2 | 5-3/4 | 14.86 |
| 4.80 | .1890 | 1 | 2-1/2 | 5-3/4 | 14.86 |
| 5.00 | .1969 | 1 | 2-3/4 | 6 | 14.82 |
| 5.20 | .2047 | 1 | 2-3/4 | 6 | 14.86 |
| 5.50 | .2165 | 1 | 2-3/4 | 6 | 14.82 |
| 5.80 | .2283 | 1 | 2-7/8 | 6-1/8 | 15.46 |
| 6.00 | .2362 | 1 | 2-7/8 | 6-1/8 | 15.46 |
| 6.20 | .2441 | 1 | 2-7/8 | 6-1/8 | 16.41 |
| 6.50 | .2559 | 1 | 3 | 6-1/4 | 16.41 |
| 6.80 | .2677 | 1 | 3 | 6-1/4 | 17.15 |
| 7.00 | .2756 | 1 | 3 | 6-1/4 | 16.40 |
| 7.20 | .2835 | 1 | 3-1/8 | 6-3/8 | 17.30 |
| 7.50 | .2953 | 1 | 3-1/8 | 6-3/8 | 16.40 |
| 7.80 | .3071 | 1 | 3-1/8 | 6-3/8 | 18.20 |
| 8.00 | .3150 | 1 | 3-1/4 | 6-1/2 | 22.28 |
| 8.20 | .3228 | 1 | 3-1/4 | 6-1/2 | 23.60 |
| 8.50 | .3346 | 1 | 3-1/4 | 6-1/2 | 23.58 |
| 8.80 | .3465 | 1 | 3-1/2 | 6-3/4 | 26.50 |
| 9.00 | .3543 | 1 | 3-1/2 | 6-3/4 | 25.80 |
| 9.20 | .3622 | 1 | 3-1/2 | 6-3/4 | 25.84 |
| 9.50 | .3740 | 1 | 3-1/2 | 6-3/4 | 25.84 |
| 9.80 | .3858 | 1 | 3-5/8 | 7 | 25.84 |
| 10.00 | .3937 | 1 | 3-5/8 | 7 | 25.84 |
| 10.20 | .4016 | 1 | 3-5/8 | 7 | 26.55 |
| 10.50 | .4134 | 1 | 3-7/8 | 7-1/4 | 28.55 |
| 10.80 | .4252 | 1 | 3-7/8 | 7-1/4 | 28.92 |
| 11.00 | .4331 | 1 | 3-7/8 | 7-1/4 | 28.80 |
| 11.20 | .4409 | 1 | 4-1/8 | 7-1/2 | 31.41 |
| 11.50 | .4528 | 1 | 4-1/8 | 7-1/2 | 31.40 |
| 11.80 | .4646 | 1 | 4-1/8 | 7-1/2 | 33.89 |
| 12.00 | .4724 | 2 | 4-3/8 | 8-1/4 | 33.80 |
| 12.20 | .4803 | 2 | 4-3/8 | 8-1/4 | 38.66 |
| 12.50 | .4921 | 2 | 4-3/8 | 8-1/4 | 33.80 |
| 12.80 | .5039 | 2 | 4-5/8 | 8-1/2 | 39.65 |
| 13.00 | .5118 | 2 | 4-5/8 | 8-1/2 | 37.80 |
| 13.20 | .5197 | 2 | 4-5/8 | 8-1/2 | 41.33 |
| 13.50 | .5315 | 2 | 4-5/8 | 8-1/2 | 41.28 |
| 13.80 | .5433 | 2 | 4-7/8 | 8-3/4 | 43.20 |
| 14.00 | .5512 | 2 | 4-7/8 | 8-3/4 | 39.40 |
| 14.25 | .5610 | 2 | 4-7/8 | 8-3/4 | 45.20 |
| 14.50 | .5709 | 2 | 4-7/8 | 8-3/4 | 44.00 |
| 14.75 | .5807 | 2 | 4-7/8 | 8-3/4 | 50.26 |
| 15.00 | .5906 | 2 | 4-7/8 | 8-3/4 | 42.80 |
| 15.25 | .6004 | 2 | 4-7/8 | 8-3/4 | 47.26 |
| 15.50 | .6102 | 2 | 4-7/8 | 8-3/4 | 45.10 |
| 15.75 | .6201 | 2 | 4-7/8 | 8-3/4 | 47.20 |
| 16.00 | .6299 | 2 | 5-1/8 | 9 | 48.44 |
| 16.25 | .6398 | 2 | 5-1/8 | 9 | 56.95 |
| 16.50 | .6496 | 2 | 5-1/8 | 9 | 49.85 |
| 16.75 | .6594 | 2 | 5-3/8 | 9-1/4 | 59.90 |
| 17.00 | .6693 | 2 | 5-3/8 | 9-1/4 | 50.08 |
| 17.25 | .6791 | 2 | 5-3/8 | 9-1/4 | 59.85 |
| 17.50 | .6890 | 2 | 5-5/8 | 9-1/2 | 53.10 |
| 18.00 | .7087 | 2 | 5-5/8 | 9-1/2 | 53.10 |
| 18.50 | .7283 | 2 | 5-5/8 | 9-1/2 | 61.15 |
| 19.00 | .7480 | 2 | 5-7/8 | 9-3/4 | 59.50 |
| 19.50 | .7677 | 2 | 6 | 9-7/8 | 73.12 |
| 20.00 | .7874 | 3 | 6 | 9-7/8 | 73.64 |

| Size | Dec. Equiv. | Morse Taper No. | Flute Length | Overall Length | Price Each |
|-------|-------------|-----------------|--------------|----------------|------------|
| 20.50 | .8071 | 3 | 6-1/8 | 10-3/4 | 81.36 |
| 21.00 | .8268 | 3 | 6-1/8 | 10-3/4 | 81.73 |
| 21.50 | .8465 | 3 | 6-1/8 | 10-3/4 | 90.30 |
| 22.00 | .8661 | 3 | 6-1/8 | 10-3/4 | 81.73 |
| 22.50 | .8858 | 3 | 6-1/8 | 10-3/4 | 88.20 |
| 23.00 | .9055 | 3 | 6-1/8 | 10-3/4 | 82.05 |
| 23.50 | .9252 | 3 | 6-1/8 | 10-3/4 | 90.68 |
| 24.00 | .9449 | 3 | 6-3/8 | 11 | 89.24 |
| 24.50 | .9646 | 3 | 6-3/8 | 11 | 98.56 |
| 25.00 | .9843 | 3 | 6-3/8 | 11 | 95.45 |
| 25.50 | 1.0039 | 3 | 6-1/2 | 11-1/8 | 110.28 |
| 26.00 | 1.0236 | 3 | 6-1/2 | 11-1/8 | 99.80 |
| 26.50 | 1.0433 | 3 | 6-5/8 | 11-1/4 | 124.80 |
| 27.00 | 1.0630 | 3 | 6-5/8 | 11-1/4 | 123.30 |
| 27.50 | 1.0827 | 4 | 6-7/8 | 12-1/2 | 138.70 |
| 28.00 | 1.1024 | 4 | 7-1/8 | 12-3/4 | 129.43 |
| 28.50 | 1.1220 | 4 | 7-1/8 | 12-3/4 | 151.95 |
| 29.00 | 1.1417 | 4 | 7-1/4 | 12-7/8 | 134.10 |
| 29.50 | 1.1614 | 4 | 7-3/8 | 13 | 165.53 |
| 30.00 | 1.1811 | 4 | 7-3/8 | 13 | 141.00 |
| 30.50 | 1.2008 | 4 | 7-1/2 | 13-1/8 | 179.10 |
| 31.00 | 1.2205 | 4 | 7-7/8 | 13-1/2 | 163.14 |
| 31.50 | 1.2402 | 4 | 7-7/8 | 13-1/2 | 186.28 |
| 32.00 | 1.2598 | 4 | 8-1/2 | 14-1/8 | 190.30 |
| 32.50 | 1.2795 | 4 | 8-1/2 | 14-1/8 | 225.55 |
| 33.00 | 1.2992 | 4 | 8-5/8 | 14-1/4 | 195.20 |
| 33.50 | 1.3189 | 4 | 8-3/4 | 14-3/8 | 242.15 |
| 34.00 | 1.3386 | 4 | 8-3/4 | 14-3/8 | 212.00 |
| 34.50 | 1.3583 | 4 | 8-7/8 | 14-1/2 | 255.75 |
| 35.00 | 1.3780 | 4 | 9 | 14-5/8 | 230.34 |
| 35.50 | 1.3976 | 4 | 9 | 14-5/8 | 263.00 |
| 36.00 | 1.4173 | 4 | 9-1/8 | 14-3/4 | 232.70 |
| 36.50 | 1.4370 | 4 | 9-1/8 | 14-3/4 | 265.70 |
| 37.00 | 1.4567 | 4 | 9-1/4 | 14-7/8 | 247.45 |
| 37.50 | 1.4764 | 4 | 9-3/8 | 15 | 282.55 |
| 38.00 | 1.4961 | 4 | 9-3/8 | 15 | 247.45 |
| 38.50 | 1.5157 | 5 | 9-5/8 | 16-5/8 | 326.94 |
| 39.00 | 1.5354 | 5 | 9-5/8 | 16-5/8 | 326.94 |
| 39.50 | 1.5551 | 5 | 9-7/8 | 16-7/8 | 326.94 |
| 40.00 | 1.5748 | 5 | 9-7/8 | 16-7/8 | 326.94 |
| 41.00 | 1.6142 | 5 | 10 | 17 | 353.10 |
| 41.50 | 1.6338 | 5 | 10-1/8 | 17-1/8 | 379.74 |
| 42.00 | 1.6535 | 5 | 10-1/8 | 17-1/8 | 379.70 |
| 42.50 | 1.6732 | 5 | 10-1/8 | 17-1/8 | 408.48 |
| 43.00 | 1.6929 | 5 | 10-1/8 | 17-1/8 | 408.48 |
| 43.50 | 1.7125 | 5 | 10-1/8 | 17-1/8 | 416.86 |
| 44.00 | 1.7323 | 5 | 10-1/8 | 17-1/8 | 416.86 |
| 44.50 | 1.7519 | 5 | 10-1/8 | 17-1/8 | 433.07 |
| 45.00 | 1.7717 | 5 | 10-1/8 | 17-1/8 | 433.05 |
| 46.00 | 1.8110 | 5 | 10-1/8 | 17-1/8 | 450.00 |
| 47.00 | 1.8504 | 5 | 10-3/8 | 17-3/8 | 464.90 |
| 48.00 | 1.8898 | 5 | 10-3/8 | 17-3/8 | 485.10 |
| 49.00 | 1.9291 | 5 | 10-3/8 | 17-3/8 | 500.15 |
| 50.00 | 1.9685 | 5 | 10-3/8 | 17-3/8 | 468.55 |
| 51.00 | 2.0079 | 5 | 10-3/8 | 17-3/8 | 545.50 |
| 55.00 | 2.1653 | 5 | 10-3/8 | 17-3/8 | 660.05 |
| 57.00 | 2.2441 | 5 | 10-3/8 | 17-3/8 | 690.00 |
| 59.00 | 2.3228 | 5 | 10-3/8 | 17-3/8 | 741.35 |
| 60.00 | 2.3622 | 5 | 11-7/8 | 19-1/2 | 1050.08 |
| 65.00 | 2.5591 | 5 | 11-7/8 | 19-1/2 | 1050.08 |
| 66.00 | 2.5984 | 5 | 11-7/8 | 19-1/2 | 1099.12 |
| 69.00 | 2.7165 | 5 | 12-3/4 | 20-3/8 | 1320.20 |
| 70.00 | 2.7559 | 5 | 13-3/8 | 21-1/8 | 1395.07 |
| 72.00 | 2.8346 | 5 | 13-3/8 | 21-1/8 | 1449.25 |

MAINTENANCE TAPER SHANK DRILLS

► LIST NO. X200

Please specify Morse Taper number when ordering



FRACTIONAL SIZES

| Size | Flute Length | Overall Length | Morse Taper No. | Price Each | Size | Flute Length | Overall Length | Morse Taper No. | Price Each | Size | Flute Length | Overall Length | Morse Taper No. | Price Each |
|---------|--------------|----------------|-----------------|------------|-----------|--------------|----------------|-----------------|------------|-----------|--------------|----------------|-----------------|------------|
| 1/8 | 1-7/8 | 5-1/8 | 1 | 10.70 | 27/32** | 6-1/8 | 10 | 2 | 54.03 | 1-19/32 | 9-7/8 | 16-7/8 | 5 | 178.46 |
| 9/64 | 2-1/8 | 5-3/8 | 1 | 11.24 | 55/64 | 6-1/8 | 10-3/4 | 3 | 48.88 | 1-19/32** | 9-7/8 | 15-1/2 | 4 | 219.69 |
| 5/32 | 2-1/8 | 5-3/8 | 1 | 10.80 | 55/64** | 6-1/8 | 10 | 2 | 61.37 | 1-39/64 | 10 | 17 | 5 | 225.00 |
| 11/64 | 2-1/2 | 5-3/4 | 1 | 11.24 | 7/8 | 6-1/8 | 10-3/4 | 3 | 44.99 | 1-39/64** | 10 | 15-5/8 | 4 | 241.23 |
| 3/16 | 2-1/2 | 5-3/4 | 1 | 7.45 | 7/8** | 6-1/8 | 10 | 2 | 55.52 | 1-5/8 | 10 | 17 | 5 | 176.75 |
| 13/64 | 2-3/4 | 6 | 1 | 8.35 | 57/64 | 6-1/8 | 10-3/4 | 3 | 49.96 | 1-5/8** | 10 | 15-5/8 | 4 | 224.67 |
| 7/32 | 2-3/4 | 6 | 1 | 8.05 | 57/64** | 6-1/8 | 10 | 2 | 63.28 | 1-41/64 | 10-1/8 | 17-1/8 | 5 | 239.70 |
| 15/64 | 2-7/8 | 6-1/8 | 1 | 9.55 | 29/32 | 6-1/8 | 10-3/4 | 3 | 48.04 | 1-41/64** | 10-1/8 | 15-3/4 | 4 | 260.05 |
| 1/4 | 2-7/8 | 6-1/8 | 1 | 8.27 | 29/32** | 6-1/8 | 10 | 2 | 58.10 | 1-21/32 | 10-1/8 | 17-1/8 | 5 | 191.92 |
| 17/64 | 3 | 6-1/4 | 1 | 9.24 | 59/64 | 6-1/8 | 10-3/4 | 3 | 50.57 | 1-21/32** | 10-1/8 | 15-3/4 | 4 | 251.70 |
| 9/32 | 3 | 6-1/4 | 1 | 8.81 | 15/16 | 6-1/8 | 10-3/4 | 3 | 45.18 | 1-43/64 | 10-1/8 | 17-1/8 | 5 | 249.00 |
| 19/64 | 3-1/8 | 6-3/8 | 1 | 11.44 | 61/64 | 6-3/8 | 11 | 3 | 51.95 | 1-43/64** | 10-1/8 | 15-3/4 | 4 | 269.93 |
| 5/16 | 3-1/8 | 6-3/8 | 1 | 8.87 | 61/64** | 6-3/8 | 11 | 3 | 49.61 | 1-11/16 | 10-1/8 | 17-1/8 | 5 | 194.84 |
| 21/64 | 3-1/4 | 6-1/2 | 1 | 12.54 | 31/32 | 6-3/8 | 11 | 3 | 55.17 | 1-11/16** | 10-1/8 | 15-3/4 | 4 | 251.88 |
| 11/32 | 3-1/4 | 6-1/2 | 1 | 13.12 | 63/64 | 6-3/8 | 11 | 3 | 50.47 | 1-45/64 | 10-1/8 | 17-1/8 | 5 | 257.10 |
| 23/64 | 3-1/2 | 6-3/4 | 1 | 14.53 | 1 | 6-3/8 | 11 | 3 | 50.47 | 1-45/64** | 10-1/8 | 15-3/4 | 4 | 278.02 |
| 3/8 | 3-1/2 | 6-3/4 | 1 | 13.84 | 1* | 6-3/8 | 12 | 4 | 81.19 | 1-23/32 | 10-1/8 | 17-1/8 | 5 | 206.45 |
| 3/8* | 3-1/2 | 7-3/8 | 2 | 20.46 | 1-1/64 | 6-1/2 | 11-1/8 | 3 | 62.76 | 1-23/32** | 10-1/8 | 15-3/4 | 4 | 257.67 |
| 25/64 | 3-5/8 | 7 | 1 | 15.05 | 1-1/32 | 6-1/2 | 11-1/8 | 3 | 55.48 | 1-47/64 | 10-1/8 | 17-1/8 | 5 | 247.50 |
| 25/64* | 3-5/8 | 7-1/2 | 2 | 22.52 | 1-1/32* | 6-1/2 | 12-1/8 | 4 | 91.51 | 1-47/64** | 10-3/8 | 16-1/4 | 4 | 268.19 |
| 13/32 | 3-5/8 | 7 | 1 | 13.97 | 1-3/64 | 6-5/8 | 11-1/4 | 3 | 65.95 | 1-3/4 | 10-1/8 | 17-1/8 | 5 | 208.65 |
| 13/32* | 3-5/8 | 7-1/2 | 2 | 21.31 | 1-1/16 | 6-5/8 | 11-1/4 | 3 | 57.95 | 1-3/4** | 10-3/8 | 16-1/4 | 4 | 244.44 |
| 27/64 | 3-7/8 | 7-1/4 | 1 | 16.05 | 1-1/16* | 6-5/8 | 12-1/4 | 4 | 95.62 | 1-25/32 | 10-1/8 | 17-1/8 | 5 | 218.87 |
| 27/64* | 3-7/8 | 7-3/4 | 2 | 22.54 | 1-5/64 | 6-7/8 | 12-1/2 | 4 | 76.07 | 1-25/32** | 10-3/8 | 16-1/4 | 4 | 269.54 |
| 7/16 | 3-7/8 | 7-1/4 | 1 | 15.19 | 1-5/64** | 6-7/8 | 11-1/2 | 3 | 97.92 | 1-13/16 | 10-1/8 | 17-1/8 | 5 | 222.39 |
| 7/16* | 3-7/8 | 7-3/4 | 2 | 24.49 | 1-3/32 | 6-7/8 | 12-1/2 | 4 | 68.53 | 1-13/16** | 10-1/8 | 16-1/4 | 4 | 269.54 |
| 29/64 | 4-1/8 | 7-1/2 | 1 | 17.66 | 1-3/32** | 6-7/8 | 11-1/2 | 3 | 88.25 | 1-27/32 | 10-1/8 | 17-1/8 | 5 | 234.47 |
| 29/64* | 4-1/8 | 8 | 2 | 24.50 | 1-7/64 | 7-1/8 | 12-3/4 | 4 | 79.09 | 1-27/32** | 10-3/8 | 16-1/4 | 4 | 287.20 |
| 15/32 | 4-1/8 | 7-1/2 | 1 | 17.76 | 1-7/64** | 7-1/8 | 11-3/4 | 3 | 112.34 | 1-7/8 | 10-3/8 | 17-3/8 | 5 | 232.71 |
| 15/32* | 4-1/8 | 8 | 2 | 24.37 | 1-1/8 | 7-1/8 | 12-3/4 | 4 | 71.24 | 1-7/8** | 10-1/2 | 16-1/2 | 4 | 285.60 |
| 31/64 | 4-3/8 | 8-1/4 | 2 | 19.96 | 1-1/8* | 7-1/8 | 11-3/4 | 3 | 91.68 | 1-29/32 | 10-3/8 | 17-3/8 | 5 | 245.19 |
| 31/64** | 4-3/8 | 7-3/4 | 1 | 25.77 | 1-9/64 | 7-1/4 | 12-7/8 | 4 | 83.82 | 1-29/32** | 10-1/2 | 16-1/2 | 4 | 308.74 |
| 1/2 | 4-3/8 | 8-1/4 | 2 | 18.15 | 1-9/64** | 7-1/4 | 11-7/8 | 3 | 105.61 | 1-15/16 | 10-3/8 | 17-3/8 | 5 | 250.35 |
| 1/2** | 4-3/8 | 7-3/4 | 1 | 22.50 | 1-5/32 | 7-1/4 | 12-7/8 | 4 | 74.54 | 1-15/16** | 10-5/8 | 16-5/8 | 4 | 304.66 |
| 33/64 | 4-5/8 | 8-1/2 | 2 | 21.76 | 1-5/32** | 7-1/4 | 11-7/8 | 3 | 99.87 | 1-31/32 | 10-3/8 | 17-3/8 | 5 | 258.33 |
| 33/64** | 4-5/8 | 8 | 1 | 28.26 | 1-11/64 | 7-3/8 | 13 | 4 | 84.75 | 1-31/32** | 10-5/8 | 16-5/8 | 4 | 314.11 |
| 17/32 | 4-5/8 | 8-1/2 | 2 | 20.30 | 1-11/64** | 7-3/8 | 12 | 3 | 109.05 | 2 | 10-3/8 | 17-3/8 | 5 | 260.01 |
| 17/32** | 4-5/8 | 8 | 1 | 25.95 | 1-3/16 | 7-3/8 | 13 | 4 | 77.62 | 2** | 10-5/8 | 16-5/8 | 4 | 306.03 |
| 35/64 | 4-7/8 | 8-3/4 | 2 | 23.68 | 1-3/16** | 7-3/8 | 12 | 3 | 101.89 | 2-1/32 | 10-3/8 | 17-3/8 | 5 | 275.83 |
| 35/64** | 4-7/8 | 8-1/4 | 1 | 30.20 | 1-13/64 | 7-1/2 | 13-1/8 | 4 | 90.70 | 2-1/16 | 10-1/4 | 17-3/8 | 5 | 275.16 |
| 9/16 | 4-7/8 | 8-3/4 | 2 | 22.13 | 1-13/64** | 7-1/2 | 12-1/8 | 3 | 117.02 | 2-1/16** | 10-1/4 | 16-1/4 | 4 | 324.97 |
| 9/16** | 4-7/8 | 8-1/4 | 1 | 28.33 | 1-7/32 | 7-1/2 | 13-1/8 | 4 | 83.53 | 2-3/32 | 10-1/4 | 17-3/8 | 4 | 293.92 |
| 37/64 | 4-7/8 | 8-3/4 | 2 | 25.15 | 1-7/32** | 7-1/2 | 12-1/2 | 3 | 109.43 | 2-1/8 | 10-1/4 | 17-3/8 | 5 | 291.10 |
| 37/64** | 4-7/8 | 8-1/4 | 1 | 32.01 | 1-15/64 | 7-7/8 | 13-1/2 | 4 | 98.92 | 2-1/8** | 10-1/4 | 16-1/4 | 4 | 353.68 |
| 19/32 | 4-7/8 | 8-3/4 | 2 | 23.80 | 1-15/64** | 7-7/8 | 12-1/2 | 3 | 127.55 | 2-5/32 | 10-1/4 | 17-3/8 | 5 | 313.46 |
| 39/64 | 4-7/8 | 8-3/4 | 2 | 26.31 | 1-1/4 | 7-7/8 | 13-1/2 | 4 | 87.34 | 2-3/16 | 10-1/4 | 17-3/8 | 5 | 315.86 |
| 5/8 | 4-7/8 | 8-3/4 | 2 | 24.18 | 1-1/4** | 7-7/8 | 12-1/2 | 3 | 120.11 | 2-3/16** | 10-1/4 | 16-1/4 | 4 | 376.47 |
| 41/64 | 5-1/8 | 9 | 2 | 28.99 | 1-17/64 | 8-1/2 | 14-1/8 | 4 | 114.04 | 2-7/32 | 10-1/8 | 17-3/8 | 5 | 330.50 |
| 41/64* | 5-1/8 | 9-3/4 | 3 | 42.96 | 1-9/32 | 8-1/2 | 14-1/8 | 4 | 108.91 | 2-1/4 | 10-1/8 | 17-3/8 | 5 | 329.78 |
| 21/32 | 5-1/8 | 9 | 2 | 26.98 | 1-19/64 | 8-5/8 | 14-1/4 | 4 | 121.42 | 2-1/4** | 10-1/8 | 16-1/8 | 4 | 396.57 |
| 21/32* | 5-1/8 | 9-3/4 | 3 | 41.17 | 1-5/16 | 8-5/8 | 14-1/4 | 4 | 109.60 | 2-9/32 | 10-1/8 | 17-3/8 | 5 | 366.00 |
| 43/64 | 5-3/8 | 9-1/4 | 2 | 31.10 | 1-21/64 | 8-3/4 | 14-3/8 | 4 | 125.54 | 2-5/16 | 10-1/8 | 17-3/8 | 5 | 355.49 |
| 43/64* | 5-3/8 | 10 | 3 | 46.10 | 1-11/32 | 8-3/4 | 14-3/8 | 4 | 116.93 | 2-11/32 | 10-1/8 | 17-3/8 | 5 | 377.10 |
| 11/16 | 5-3/8 | 9-1/4 | 2 | 28.09 | 1-23/64 | 8-7/8 | 14-1/2 | 4 | 128.26 | 2-3/8 | 10-1/8 | 17-3/8 | 5 | 365.86 |
| 11/16* | 5-3/8 | 10 | 3 | 45.14 | 1-3/8 | 8-7/8 | 14-1/2 | 4 | 117.56 | 2-13/32 | 11-1/4 | 18-3/4 | 5 | 479.40 |
| 45/64 | 5-5/8 | 9-1/2 | 2 | 32.39 | 1-3/8** | 8-7/8 | 13-1/2 | 3 | 156.57 | 2-7/16 | 11-1/4 | 18-3/4 | 5 | 466.57 |
| 45/64* | 5-5/8 | 10-1/4 | 3 | 49.89 | 1-25/64 | 9 | 14-5/8 | 4 | 131.78 | 2-15/32 | 11-1/4 | 18-3/4 | 5 | 493.50 |
| 23/32 | 5-5/8 | 9-1/2 | 2 | 30.08 | 1-15/32 | 9 | 14-5/8 | 4 | 127.01 | 2-1/2 | 11-1/4 | 18-3/4 | 5 | 477.04 |
| 23/32* | 5-5/8 | 10-1/4 | 3 | 48.41 | 1-27/64 | 9-1/8 | 14-3/4 | 4 | 136.48 | 2-9/16 | 11-7/8 | 19-1/2 | 5 | 525.94 |
| 47/64 | 5-7/8 | 9-3/4 | 2 | 34.40 | 1-7/16 | 9-1/8 | 14-3/4 | 4 | 127.08 | 2-5/8 | 11-7/8 | 19-1/2 | 5 | 558.71 |
| 47/64* | 5-7/8 | 10-1/2 | 3 | 54.00 | 1-7/16** | 9-1/8 | 13-3/4 | 3 | 172.70 | 2-11/16 | 12-3/4 | 20-3/8 | 5 | 610.13 |
| 3/4 | 5-7/8 | 9-3/4 | 2 | 32.77 | 1-29/64 | 9-1/4 | 14-7/8 | 4 | 143.53 | 2-3/4 | 12-3/4 | 20-3/8 | 5 | 621.70 |
| 3/4* | 5-7/8 | 10-1/2 | 3 | 50.69 | 1-15/32 | 9-1/4 | 14-7/8 | 4 | 136.83 | 2-13/16 | 13-3/8 | 21-1/8 | 5 | 682.85 |
| 49/64 | 6 | 9-7/8 | 2 | 41.35 | 1-31/64 | 9-3/8 | 15 | 4 | 147.30 | 2-7/8 | 13-3/8 | 21-1/8 | 5 | 714.14 |
| 49/64* | 6 | 10-5/8 | 3 | 60.05 | 1-1/2 | 9-3/8 | 15 | 4 | 135.13 | 2-15/16 | 14 | 21-3/4 | 5 | 759.29 |
| 25/32 | 6 | 9-7/8 | 2 | 39.53 | 1-33/64 | 9-3/8 | 16-3/8 | 5 | 189.60 | 3 | 14 | 21-3/4 | 5 | 785.51 |
| 25/32* | 6 | 10-5/8 | 3 | 55.73 | 1-33/64** | 9-3/8 | 15 | 4 | 205.45 | 3-1/16 | 14-5/8 | 24-1/2 | 6 | 1017.00 |
| 51/64 | 6-1/8 | 10-3/4 | 3 | 45.28 | 1-17/32 | 9-3/8 | 16-3/8 | 5 | 157.68 | 3-1/8 | 14-5/8 | 24-1/2 | 6 | 1012.05 |
| 51/64** | 6-1/8 | 10 | 2 | 55.27 | 1-17/32** | 9-3/8 | 15 | 4 | 192.08 | 3-3/16 | 14-5/8 | 24-1/2 | 6 | 1182.42 |
| 13/16 | 6-1/8 | 10-3/4 | 3 | 40.53 | 1-35/64 | 9-5/8 | 16-5/8 | 5 | 201.60 | 3-1/4 | 15-1/2 | 25-1/2 | 6 | 1154.64 |
| 13/16** | 6-1/8 | 10 | 2 | 50.51 | 1-35/64** | 9-5/8 | 15-1/4 | 4 | 218.59 | 3-5/16 | 15-1/2 | 25-1/2 | 6 | 1212.42 |
| 53/64 | 6-1/8 | 10-3/4 | 3 | 47.24 | 1-9/16 | 9-5/8 | 16-5/8 | 5 | 163.64 | 3-3/8 | 15-1/2 | 25-1/2 | 6 | 1380.00 |
| 53/64** | 6-1/8 | 10 | 2 | 58.84 | 1-9/16** | 9-5/8 | 15-1/4 | 4 | 205.54 | 3-7/16 | 15-1/2 | 25-1/2 | 6 | 1560.00 |
| 27/32 | 6-1/8 | 10-3/4 | 3 | 43.97 | 1-37/64 | 9-7/8 | 16-7/8 | 5 | 214.80 | 3-1/2 | 16-3/8 | 26-1/2 | 6 | 1518.00 |
| | | | | | 1-37/64** | 9-7/8 | 15-1/2 | 4 | 232.29 | | | | | |

* Shank larger than standard.
** Shank smaller than standard.



HIGH SPEED STEEL

TAPER SHANK DRILLS

► LIST NO. 201



Furnished with #1 Morse Taper Shank.

LETTER SIZES

| Size | Dec. Equiv. | Flute Length | Overall Length | Price Each |
|------|-------------|--------------|----------------|------------|
| A | .2340 | 2-7/8 | 6-1/8 | 24.89 |
| B | .2380 | 2-7/8 | 6-1/8 | 24.89 |
| C | .2420 | 2-7/8 | 6-1/8 | 24.89 |
| D | .2460 | 2-7/8 | 6-1/8 | 22.08 |
| E | .2500 | 2-7/8 | 6-1/8 | 13.79 |
| F | .2570 | 3 | 6-1/4 | 21.89 |
| G | .2610 | 3 | 6-1/4 | 26.09 |
| H | .2660 | 3 | 6-1/4 | 26.09 |
| I | .2720 | 3 | 6-1/4 | 26.09 |

| Size | Dec. Equiv. | Flute Length | Overall Length | Price Each |
|------|-------------|--------------|----------------|------------|
| J | .2770 | 3 | 6-1/4 | 24.08 |
| K | .2810 | 3 | 6-1/4 | 27.38 |
| L | .2900 | 3-1/8 | 6-3/8 | 27.38 |
| M | .2950 | 3-1/8 | 6-3/8 | 27.38 |
| N | .3020 | 3-1/8 | 6-3/8 | 27.38 |
| O | .3160 | 3-1/4 | 6-1/2 | 32.49 |
| P | .3230 | 3-1/4 | 6-1/2 | 32.49 |
| Q | .3320 | 3-1/4 | 6-1/2 | 34.08 |
| R | .3390 | 3-1/4 | 6-1/2 | 37.49 |

| Size | Dec. Equiv. | Flute Length | Overall Length | Price Each |
|------|-------------|--------------|----------------|------------|
| S | .3480 | 3-1/2 | 6-3/4 | 39.28 |
| T | .3580 | 3-1/2 | 6-3/4 | 39.28 |
| U | .3680 | 3-1/2 | 6-3/4 | 39.28 |
| V | .3770 | 3-5/8 | 7 | 41.39 |
| W | .3860 | 3-5/8 | 7 | 41.39 |
| X | .3970 | 3-5/8 | 7 | 42.68 |
| Y | .4040 | 3-5/8 | 7 | 42.68 |
| Z | .4130 | 3-7/8 | 7-1/4 | 44.59 |

► LIST NO. 204



Furnished with #1 Morse Taper Shank. Flute length and overall length are approximately the same as corresponding fractional.

WIRE GAUGE SIZES

| Size | Dec. Equiv. | Price Each |
|------|-------------|------------|
| 1 | .2280 | 24.00 |
| 2 | .2210 | 24.00 |
| 3 | .2130 | 24.00 |
| 4 | .2090 | 24.00 |
| 5 | .2055 | 24.00 |
| 6 | .2040 | 24.00 |
| 7 | .2010 | 22.90 |
| 8 | .1990 | 22.90 |
| 9 | .1960 | 22.90 |

| Size | Dec. Equiv. | Price Each |
|------|-------------|------------|
| 10 | .1935 | 22.90 |
| 11 | .1910 | 22.90 |
| 12 | .1890 | 22.90 |
| 13 | .1850 | 22.90 |
| 14 | .1820 | 22.90 |
| 15 | .1800 | 22.90 |
| 16 | .1770 | 22.90 |
| 17 | .1730 | 22.90 |
| 18 | .1695 | 22.90 |

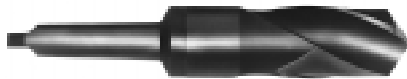
| Size | Dec. Equiv. | Price Each |
|------|-------------|------------|
| 19 | .1660 | 22.90 |
| 20 | .1610 | 21.50 |
| 21 | .1590 | 21.50 |
| 22 | .1570 | 21.50 |
| 23 | .1540 | 21.50 |
| 24 | .1520 | 21.50 |
| 25 | .1495 | 21.50 |
| 26 | .1470 | 21.50 |
| 27 | .1440 | 21.50 |

| Size | Dec. Equiv. | Price Each |
|------|-------------|------------|
| 28 | .1405 | 21.50 |
| 29 | .1360 | 21.50 |
| 30 | .1285 | 21.50 |
| 31 | .1200 | 21.50 |
| 37 | .1040 | 21.50 |
| 39 | .0995 | 21.50 |
| 40 | .0980 | 21.50 |
| 44 | .0860 | 21.50 |
| 47 | .0785 | 21.50 |

STUB LENGTH TAPER SHANK DRILLS

■ LIST NO. 200ST — 118° POINT

5" approximate flute length



Because of their short overall and flute length, stub length taper shank drills are recommended for use in boring mills, screw machines and lathes or where short projection is required.

| Size | Dec. Equiv. | Approx. Overall Length | Morse Taper No. | Price Each |
|--------|-------------|------------------------|-----------------|------------|
| 2 | 2.0000 | 11 | 4 | 218.44 |
| 2 | 2.0000 | 12 | 5 | 224.99 |
| 2-1/16 | 2.0625 | 11 | 4 | 239.40 |
| 2-1/16 | 2.0625 | 12 | 5 | 246.58 |
| 2-1/8 | 2.1250 | 11 | 4 | 259.64 |
| 2-1/8 | 2.1250 | 12 | 5 | 267.40 |
| 2-3/16 | 2.1875 | 11 | 4 | 280.11 |
| 2-3/16 | 2.1875 | 12 | 5 | 288.50 |
| 2-1/4 | 2.2500 | 11 | 4 | 290.49 |
| 2-1/4 | 2.2500 | 12 | 5 | 299.20 |
| 2-5/16 | 2.3125 | 11 | 4 | 299.99 |

| Size | Dec. Equiv. | Approx. Overall Length | Morse Taper No. | Price Each |
|--------|-------------|------------------------|-----------------|------------|
| 2-5/16 | 2.3125 | 12 | 5 | 308.40 |
| 2-3/8 | 2.3750 | 11 | 4 | 310.55 |
| 2-3/8 | 2.3750 | 12 | 5 | 319.88 |
| 2-7/16 | 2.4375 | 12 | 5 | 340.86 |
| 2-1/2 | 2.5000 | 11 | 4 | 349.90 |
| 2-1/2 | 2.5000 | 12 | 5 | 359.90 |
| 2-5/8 | 2.6250 | 12 | 5 | 388.30 |
| 2-3/4 | 2.7500 | 12 | 5 | 440.77 |
| 2-7/8 | 2.8750 | 12 | 5 | 510.50 |
| 3 | 3.0000 | 12 | 5 | 571.10 |
| 3-1/4 | 3.2500 | 12 | 5 | 747.87 |

COBALT TAPER SHANK DRILLS



● LIST NO. 210C — SUPER COBALT, HEAVY DUTY, 135° NOTCHED POINT



These premium cobalt drills exhibit greater toughness, abrasion resistance and higher red hardness than the standard high speed drills. They are recommended for use on hard-to-machine materials where longer tool life is desired.

| Size | Flute Length | Overall Length | Morse Taper No. | Price Each | Size | Flute Length | Overall Length | Morse Taper No. | Price Each | Size | Flute Length | Overall Length | Morse Taper No. | Price Each |
|-------|--------------|----------------|-----------------|------------|--------|--------------|----------------|-----------------|------------|---------|--------------|----------------|-----------------|------------|
| 1/4 | 2-7/8 | 6-1/8 | 1 | 26.98 | 23/32 | 5-5/8 | 10-1/4 | 3 | 96.00 | 1-11/64 | 7-3/8 | 13 | 4 | 304.53 |
| 17/64 | 3 | 6-1/4 | 1 | 28.67 | 47/64 | 5-7/8 | 10-1/2 | 3 | 105.85 | 1-3/16 | 7-3/8 | 12 | 3* | 267.91 |
| 9/32 | 3 | 6-1/4 | 1 | 30.33 | 3/4 | 5-7/8 | 10-1/2 | 3 | 100.16 | 1-3/16 | 7-3/8 | 13 | 4 | 267.91 |
| 19/64 | 3-1/8 | 6-3/8 | 1 | 28.67 | 49/64 | 6 | 10-5/8 | 3 | 113.43 | 1-13/64 | 7-1/2 | 13-1/8 | 4 | 315.47 |
| 5/16 | 3-1/8 | 6-3/8 | 1 | 30.33 | 25/32 | 6 | 9-7/8 | 2* | 105.35 | 1-7/32 | 7-1/2 | 13-1/8 | 4 | 319.82 |
| 21/64 | 3-1/4 | 6-1/2 | 1 | 33.62 | 25/32 | 6 | 10-5/8 | 3 | 105.35 | 1-15/64 | 7-7/8 | 13-1/2 | 4 | 347.00 |
| 11/32 | 3-1/4 | 6-1/2 | 1 | 35.60 | 51/64 | 6-1/8 | 10-3/4 | 3 | 120.40 | 1-1/4 | 7-7/8 | 13-1/2 | 4 | 311.12 |
| 23/64 | 3-1/2 | 6-3/4 | 1 | 39.00 | 13/16 | 6-1/8 | 10 | 2* | 108.75 | 1-17/64 | 8-1/2 | 14-1/8 | 4 | 373.00 |
| 3/8 | 3-1/2 | 6-3/4 | 1* | 41.20 | 13/16 | 6-1/8 | 10-3/4 | 3 | 108.75 | 1-9/32 | 8-1/2 | 14-1/8 | 4 | 373.00 |
| 3/8 | 3-1/2 | 7-3/8 | 2 | 41.20 | 53/64 | 6-1/8 | 10-3/4 | 3 | 140.25 | 1-19/64 | 8-5/8 | 14-1/4 | 4 | 406.53 |
| 25/64 | 3-5/8 | 7-1/2 | 2 | 42.45 | 27/32 | 6-1/8 | 10-3/4 | 3 | 129.15 | 1-5/16 | 8-5/8 | 14-1/4 | 4* | 373.00 |
| 13/32 | 3-5/8 | 7-1/2 | 2 | 43.72 | 55/64 | 6-1/8 | 10-3/4 | 3 | 140.24 | 1-5/16 | 8-5/8 | 15-7/8 | 5 | 373.00 |
| 27/64 | 3-7/8 | 7-3/4 | 2 | 50.35 | 7/8 | 6-1/8 | 10-3/4 | 3 | 129.15 | 1-21/64 | 8-3/4 | 14-3/8 | 4 | 401.00 |
| 7/16 | 3-7/8 | 7-3/4 | 2 | 47.20 | 57/64 | 6-1/8 | 10-3/4 | 3 | 140.24 | 1-11/32 | 8-3/4 | 14-3/8 | 4 | 401.00 |
| 29/64 | 4-1/8 | 8 | 2 | 54.00 | 29/32 | 6-1/8 | 10-3/4 | 3 | 126.71 | 1-23/64 | 8-7/8 | 14-1/2 | 4 | 436.10 |
| 15/32 | 4-1/8 | 8 | 2 | 50.61 | 59/64 | 6-1/8 | 10-3/4 | 3 | 164.90 | 1-3/8 | 8-7/8 | 14-1/2 | 4* | 401.00 |
| 31/64 | 4-3/8 | 8-1/4 | 2 | 55.80 | 15/16 | 6-1/8 | 10-3/4 | 3 | 148.95 | 1-3/8 | 8-7/8 | 15-7/8 | 5 | 401.00 |
| 1/2 | 4-3/8 | 8-1/4 | 2 | 52.30 | 61/64 | 6-3/8 | 11 | 3 | 186.65 | 1-25/64 | 9 | 14-5/8 | 4 | 432.00 |
| 33/64 | 4-5/8 | 8-1/2 | 2 | 63.95 | 31/32 | 6-3/8 | 11 | 3 | 176.65 | 1-13/32 | 9 | 14-5/8 | 4 | 455.00 |
| 17/32 | 4-5/8 | 8-1/2 | 2 | 59.40 | 63/64 | 6-3/8 | 11 | 3 | 181.53 | 1-27/64 | 9-1/8 | 14-3/4 | 4 | 514.28 |
| 35/64 | 4-7/8 | 8-3/4 | 2 | 66.90 | 1 | 6-3/8 | 11 | 3 | 168.56 | 1-7/16 | 9-1/8 | 14-3/4 | 4* | 474.01 |
| 9/16 | 4-7/8 | 8-3/4 | 2 | 62.12 | 1-1/64 | 6-1/2 | 12-1/8 | 4 | 245.41 | 1-7/16 | 9-1/8 | 16-1/8 | 5 | 474.01 |
| 37/64 | 4-7/8 | 8-3/4 | 2 | 71.00 | 1-1/32 | 6-1/2 | 12-1/8 | 4 | 226.20 | 1-29/64 | 9-1/4 | 14-7/8 | 4 | 519.00 |
| 19/32 | 4-7/8 | 8-3/4 | 2 | 69.09 | 1-3/64 | 6-5/8 | 12-1/4 | 4 | 223.11 | 1-15/32 | 9-1/4 | 14-7/8 | 4 | 509.08 |
| 39/64 | 4-7/8 | 8-3/4 | 2 | 78.25 | 1-1/16 | 6-5/8 | 12-1/4 | 4 | 215.95 | 1-31/64 | 9-3/8 | 15 | 4 | 552.20 |
| 5/8 | 4-7/8 | 8-3/4 | 2 | 70.67 | 1-5/64 | 6-7/8 | 12-1/2 | 4 | 244.18 | 1-1/2 | 9-3/8 | 15 | 4* | 509.00 |
| 41/64 | 5-1/8 | 9-3/4 | 3 | 89.50 | 1-3/32 | 6-7/8 | 12-1/2 | 4 | 247.33 | 1-1/2 | 9-3/8 | 16-3/8 | 5 | 509.00 |
| 21/32 | 5-1/8 | 9-3/4 | 3 | 80.86 | 1-7/64 | 7-1/8 | 12-3/4 | 4 | 261.26 | 1-5/8 | 10 | 17 | 5 | 599.00 |
| 43/64 | 5-3/8 | 10 | 3 | 95.61 | 1-1/8 | 7-1/8 | 12-3/4 | 4 | 236.35 | 1-3/4 | 10-1/8 | 17-1/8 | 5 | 750.00 |
| 11/16 | 5-3/8 | 10 | 3 | 86.40 | 1-9/64 | 7-1/4 | 12-7/8 | 4 | 304.51 | 1-13/16 | 10-1/8 | 17-1/8 | 5 | 810.00 |
| 45/64 | 5-5/8 | 10-1/4 | 3 | 104.28 | 1-5/32 | 7-1/4 | 12-7/8 | 4 | 280.66 | 2 | 10-3/8 | 17-3/8 | 5 | 915.00 |

* Shank smaller than standard

HIGH SPEED STEEL

TITANIUM NITRIDE COATED TAPER SHANK DRILLS

► LIST NO. 200T — 118° POINT



| Size | Flute Length | Overall Length | Morse Taper No. | Price Each |
|-------|--------------|----------------|-----------------|------------|
| 5/16 | 3-1/8 | 6-3/8 | 1 | 44.98 |
| 3/8 | 3-1/2 | 6-3/4 | 1 | 46.99 |
| 7/16 | 3-7/8 | 7-1/4 | 1 | 51.25 |
| 1/2 | 4-3/8 | 8-1/4 | 2 | 60.50 |
| 33/64 | 4-5/8 | 8-1/2 | 2 | 72.25 |
| 17/32 | 4-5/8 | 8-1/2 | 2 | 66.99 |
| 9/16 | 4-7/8 | 8-3/4 | 2 | 74.25 |
| 19/32 | 4-7/8 | 8-3/4 | 2 | 79.95 |
| 5/8 | 4-7/8 | 8-3/4 | 2 | 81.00 |
| 21/32 | 5-1/8 | 9 | 2 | 90.00 |
| 11/16 | 5-3/8 | 9-1/4 | 2 | 93.00 |

| Size | Flute Length | Overall Length | Morse Taper No. | Price Each |
|-------|--------------|----------------|-----------------|------------|
| 23/32 | 5-5/8 | 9-1/2 | 2 | 100.00 |
| 3/4 | 5-7/8 | 9-3/4 | 2 | 109.00 |
| 25/32 | 6 | 9-7/8 | 2 | 130.00 |
| 13/16 | 6-1/8 | 10-3/4 | 3 | 136.00 |
| 27/32 | 6-1/8 | 10-3/4 | 3 | 146.00 |
| 7/8 | 6-1/8 | 10-3/4 | 3 | 150.00 |
| 29/32 | 6-1/8 | 10-3/4 | 3 | 160.00 |
| 15/16 | 6-1/8 | 10-3/4 | 3 | 152.00 |
| 31/32 | 6-3/8 | 11 | 3 | 165.00 |
| 63/64 | 6-3/8 | 11 | 3 | 182.00 |
| 1 | 6-3/8 | 11 | 3 | 168.00 |

| Size | Flute Length | Overall Length | Morse Taper No. | Price Each |
|--------|--------------|----------------|-----------------|------------|
| 1-1/32 | 6-1/2 | 11-1/8 | 3 | 185.00 |
| 1-1/16 | 6-5/8 | 11-1/4 | 3 | 192.00 |
| 1-3/32 | 6-7/8 | 12-1/2 | 4 | 228.00 |
| 1-1/8 | 7-1/8 | 12-3/4 | 4 | 237.00 |
| 1-5/32 | 7-1/4 | 12-7/8 | 4 | 250.00 |
| 1-3/16 | 7-3/8 | 13 | 4 | 260.00 |
| 1-7/32 | 7-1/2 | 13-1/8 | 4 | 280.00 |
| 1-1/4 | 7-7/8 | 13-1/2 | 4 | 290.00 |
| 1-5/16 | 8-5/8 | 14-1/4 | 4 | 366.00 |
| 1-3/8 | 8-7/8 | 14-1/2 | 4 | 390.00 |
| 1-1/2 | 9-3/8 | 15 | 4 | 450.00 |



EXTRA LENGTH DRILLS

TAPER SHANK, 118° POINT



| Size | Dec. Equiv. | Morse Taper No. | Flute Length | Price Each |
|---------------------------|-------------|-----------------|--------------|------------|
| 8" OVERALL LENGTH | | | | |
| ▶ LIST NO. 108 | | | | |
| 1/8 | .1250 | 1 | 5 | 60.55 |
| 9/64 | .1406 | 1 | 5 | 63.50 |
| 5/32 | .1562 | 1 | 5 | 63.50 |
| 11/64 | .1719 | 1 | 5 | 63.50 |
| 3/16 | .1875 | 1 | 5 | 63.50 |
| 13/64 | .2031 | 1 | 5 | 63.50 |
| 7/32 | .2188 | 1 | 5 | 63.50 |
| 15/64 | .2344 | 1 | 5 | 63.50 |
| 1/4 | .2500 | 1 | 5 | 63.50 |
| 17/64 | .2656 | 1 | 5 | 68.78 |
| 9/32 | .2812 | 1 | 5 | 68.78 |
| 19/64 | .2969 | 1 | 5 | 68.75 |
| 5/16 | .3125 | 1 | 5 | 68.75 |
| 5/16 | .3125 | 2 | 4 | 68.75 |
| 21/64 | .3281 | 1 | 5 | 77.30 |
| 11/32 | .3438 | 1 | 5 | 77.30 |
| 23/64 | .3594 | 1 | 5 | 79.50 |
| 3/8 | .3750 | 1 | 5 | 79.50 |
| 29/64 | .4531 | 1 | 5 | 87.50 |
| 15/32 | .4688 | 1 | 5 | 87.50 |
| 10" OVERALL LENGTH | | | | |
| ▶ LIST NO. 110 | | | | |
| 5/32 | .1562 | 1 | 7 | 73.00 |
| 11/64 | .1719 | 1 | 7 | 74.50 |
| 13/64 | .2031 | 1 | 7 | 76.95 |
| 7/32 | .2188 | 1 | 7 | 76.95 |
| 15/64 | .2344 | 1 | 7 | 76.95 |
| 1/4 | .2500 | 1 | 7 | 76.95 |
| 9/32 | .2812 | 1 | 7 | 83.95 |
| 19/64 | .2969 | 1 | 7 | 83.95 |
| 21/64 | .3281 | 1 | 7 | 90.95 |
| 23/64 | .3594 | 1 | 7 | 93.50 |
| 3/8 | .3750 | 1 | 7 | 93.50 |
| 7/16 | .4375 | 1 | 7 | 99.58 |
| 29/64 | .4531 | 1 | 7 | 109.35 |
| 15/32 | .4688 | 1 | 7 | 105.40 |
| 31/64 | .4844 | 2 | 6 | 120.70 |
| 1/2 | .5000 | 2 | 6 | 116.45 |
| 33/64 | .5156 | 2 | 6 | 120.70 |
| 17/32 | .5312 | 2 | 6 | 116.45 |
| 9/16 | .5625 | 2 | 6 | 118.10 |
| 37/64 | .5781 | 2 | 6 | 124.00 |
| 19/32 | .5938 | 2 | 6 | 119.65 |
| 5/8 | .6250 | 2 | 6 | 127.50 |
| 12" OVERALL LENGTH | | | | |
| ▶ LIST NO. 112 | | | | |
| 1/8 | .1250 | 1 | 9 | 86.50 |
| 5/32 | .1562 | 1 | 9 | 87.75 |
| 11/64 | .1719 | 1 | 9 | 87.75 |
| 3/16 | .1875 | 1 | 9 | 87.75 |
| 13/64 | .2031 | 1 | 9 | 89.75 |
| 7/32 | .2188 | 1 | 9 | 89.75 |
| 15/64 | .2344 | 1 | 9 | 89.75 |
| 1/4 | .2500 | 1 | 9 | 89.75 |
| 17/64 | .2656 | 1 | 9 | 98.25 |
| 9/32 | .2812 | 1 | 9 | 98.25 |
| 19/64 | .2969 | 1 | 9 | 98.25 |
| 5/16 | .3125 | 1 | 9 | 98.25 |
| 21/64 | .3281 | 1 | 9 | 107.00 |
| 11/32 | .3432 | 1 | 9 | 107.00 |
| 23/64 | .3594 | 1 | 9 | 110.00 |
| 3/8 | .3750 | 1 | 9 | 110.00 |
| 25/64 | .3906 | 1 | 9 | 115.50 |
| 13/32 | .4062 | 1 | 9 | 115.50 |
| 27/64 | .4219 | 1 | 9 | 119.50 |
| 7/16 | .4375 | 1 | 9 | 119.50 |
| 29/64 | .4531 | 1 | 9 | 128.65 |
| 15/32 | .4688 | 1 | 9 | 124.00 |
| 31/64 | .4844 | 2 | 8 | 142.00 |
| 1/2 | .5000 | 2 | 8 | 137.00 |
| 33/64 | .5156 | 2 | 8 | 142.00 |
| 17/32 | .5312 | 2 | 8 | 137.50 |
| 35/64 | .5469 | 2 | 8 | 144.00 |
| 9/16 | .5625 | 2 | 8 | 138.95 |
| 37/64 | .5781 | 2 | 8 | 145.95 |
| 19/32 | .5938 | 2 | 8 | 140.75 |
| 39/64 | .6094 | 2 | 8 | 155.65 |
| 5/8 | .6250 | 2 | 8 | 149.98 |

| Size | Dec. Equiv. | Morse Taper No. | Flute Length | Price Each |
|---------------------------|-------------|-----------------|--------------|------------|
| 12" OVERALL LENGTH | | | | |
| ▶ LIST NO. 112 | | | | |
| 41/64 | .6406 | 2 | 8 | 160.50 |
| 21/32 | .6562 | 2 | 8 | 160.50 |
| 43/64 | .6719 | 2 | 8 | 175.00 |
| 11/16 | .6875 | 2 | 8 | 175.00 |
| 45/64 | .7031 | 2 | 8 | 186.50 |
| 23/32 | .7188 | 2 | 8 | 186.50 |
| 47/64 | .7344 | 2 | 8 | 193.95 |
| 3/4 | .7500 | 2 | 8 | 193.95 |
| 49/64 | .7656 | 2 | 8 | 204.80 |
| 49/64 | .7656 | 3 | 7 | 204.80 |
| 25/32 | .7812 | 2 | 8 | 204.80 |
| 25/32 | .7812 | 3 | 7 | 204.80 |
| 51/64 | .7969 | 3 | 7 | 216.15 |
| 13/16 | .8125 | 3 | 7 | 216.15 |
| 53/64 | .8281 | 3 | 7 | 216.15 |
| 27/32 | .8438 | 3 | 7 | 216.15 |
| 55/64 | .8594 | 3 | 7 | 216.15 |
| 7/8 | .8750 | 3 | 7 | 216.15 |
| 57/64 | .8906 | 3 | 7 | 237.60 |
| 29/32 | .9062 | 3 | 7 | 237.60 |
| 59/64 | .9219 | 3 | 7 | 245.40 |
| 15/16 | .9375 | 3 | 7 | 245.40 |
| 31/32 | .9688 | 3 | 7 | 257.10 |
| 1 | 1.0000 | 3 | 7 | 259.00 |
| 14" OVERALL LENGTH | | | | |
| ▶ LIST NO. 114 | | | | |
| 5/16 | .3125 | 2 | 10 | 125.00 |
| 7/16 | .4375 | 1 | 11 | 139.50 |
| 15/32 | .4688 | 1 | 11 | 139.50 |
| 15/32 | .4688 | 2 | 10 | 139.50 |
| 31/64 | .4844 | 2 | 10 | 141.60 |
| 1/2 | .5000 | 2 | 10 | 141.60 |
| 33/64 | .5156 | 2 | 10 | 143.00 |
| 17/32 | .5312 | 2 | 10 | 148.90 |
| 37/64 | .5781 | 2 | 10 | 155.50 |
| 19/32 | .5938 | 2 | 10 | 155.50 |
| 39/64 | .6094 | 2 | 10 | 164.00 |
| 5/8 | .6250 | 2 | 10 | 164.00 |
| 21/32 | .6562 | 2 | 10 | 175.75 |
| 11/16 | .6875 | 2 | 10 | 189.75 |
| 45/64 | .7031 | 2 | 10 | 192.50 |
| 23/32 | .7188 | 2 | 10 | 209.00 |
| 47/64 | .7344 | 2 | 10 | 209.00 |
| 3/4 | .7500 | 2 | 10 | 209.00 |
| 49/64 | .7656 | 2 | 10 | 219.00 |
| 25/32 | .7812 | 2 | 10 | 219.00 |
| 27/32 | .8438 | 3 | 9 | 227.00 |
| 57/64 | .8906 | 3 | 9 | 252.00 |
| 31/32 | .9688 | 3 | 9 | 274.00 |
| 63/64 | .9844 | 3 | 9 | 274.00 |
| 15" OVERALL LENGTH | | | | |
| ▶ LIST NO. 115 | | | | |
| 3/16 | .1875 | 1 | 12 | 117.00 |
| 13/64 | .2031 | 1 | 12 | 117.00 |
| 7/32 | .2188 | 1 | 12 | 117.00 |
| 15/64 | .2344 | 1 | 12 | 117.00 |
| 1/4 | .2500 | 1 | 12 | 117.00 |
| 17/64 | .2656 | 1 | 12 | 123.50 |
| 9/32 | .2812 | 1 | 12 | 123.50 |
| 19/64 | .2969 | 1 | 12 | 130.00 |
| 5/16 | .3125 | 1 | 12 | 130.00 |
| 21/64 | .3281 | 1 | 12 | 136.50 |
| 11/32 | .3438 | 1 | 12 | 136.50 |
| 23/64 | .3594 | 1 | 12 | 152.10 |
| 3/8 | .3750 | 1 | 12 | 152.10 |
| 25/64 | .3906 | 1 | 12 | 152.10 |
| 13/32 | .4062 | 1 | 12 | 152.10 |
| 27/64 | .4219 | 1 | 12 | 152.10 |
| 7/16 | .4375 | 1 | 12 | 152.10 |
| 29/64 | .4531 | 1 | 12 | 156.00 |
| 15/32 | .4688 | 1 | 12 | 156.00 |
| 31/64 | .4844 | 2 | 11 | 158.25 |
| 1/2 | .5000 | 2 | 11 | 158.25 |
| 33/64 | .5156 | 2 | 11 | 158.25 |
| 17/32 | .5312 | 2 | 11 | 158.25 |
| 35/64 | .5469 | 1 | 12 | 160.50 |
| 35/64 | .5469 | 2 | 11 | 160.50 |
| 9/16 | .5625 | 2 | 11 | 160.50 |
| 37/64 | .5781 | 2 | 11 | 162.75 |

| Size | Dec. Equiv. | Morse Taper No. | Flute Length | Price Each |
|---------------------------|-------------|-----------------|--------------|------------|
| 15" OVERALL LENGTH | | | | |
| ▶ LIST NO. 115 | | | | |
| 19/32 | .5938 | 2 | 11 | 162.75 |
| 39/64 | .6094 | 2 | 11 | 173.70 |
| 5/8 | .6250 | 2 | 11 | 173.70 |
| 41/64 | .6406 | 2 | 11 | 186.00 |
| 21/32 | .6562 | 2 | 11 | 186.00 |
| 43/64 | .6719 | 2 | 11 | 203.80 |
| 11/16 | .6875 | 2 | 11 | 203.80 |
| 45/64 | .7031 | 2 | 11 | 210.75 |
| 23/32 | .7188 | 2 | 11 | 210.75 |
| 47/64 | .7344 | 2 | 11 | 225.85 |
| 3/4 | .7500 | 2 | 11 | 225.85 |
| 49/64 | .7656 | 2 | 11 | 238.25 |
| 25/32 | .7812 | 2 | 11 | 238.25 |
| 51/64 | .7969 | 3 | 10 | 238.25 |
| 13/16 | .8125 | 3 | 10 | 238.25 |
| 53/64 | .8281 | 3 | 10 | 238.25 |
| 27/32 | .8438 | 3 | 10 | 238.25 |
| 55/64 | .8594 | 3 | 10 | 238.25 |
| 7/8 | .8750 | 3 | 10 | 238.25 |
| 57/64 | .8906 | 3 | 10 | 268.25 |
| 29/32 | .9062 | 3 | 10 | 268.25 |
| 59/64 | .9219 | 3 | 10 | 268.25 |
| 15/16 | .9375 | 3 | 10 | 282.00 |
| 61/64 | .9531 | 3 | 10 | 286.15 |
| 31/32 | .9688 | 3 | 10 | 286.15 |
| 63/64 | .9844 | 3 | 10 | 289.75 |
| 1 | 1.0000 | 3 | 10 | 289.75 |
| 1-1/64 | 1.0156 | 3 | 10 | 291.15 |
| 1-1/32 | 1.0312 | 3 | 10 | 291.15 |
| 1-3/64 | 1.0469 | 3 | 10 | 296.50 |
| 1-1/16 | 1.0625 | 3 | 10 | 291.15 |
| 1-5/64 | 1.0781 | 4 | 9 | 312.00 |
| 1-3/32 | 1.0938 | 4 | 9 | 312.00 |
| 1-7/64 | 1.1094 | 4 | 9 | 312.00 |
| 1-1/8 | 1.1250 | 4 | 9 | 312.00 |
| 1-9/64 | 1.1406 | 4 | 9 | 318.25 |
| 1-5/32 | 1.1562 | 4 | 9 | 318.25 |
| 1-11/64 | 1.1719 | 4 | 9 | 321.75 |
| 1-3/16 | 1.1875 | 3 | 10 | 321.75 |
| 1-3/16 | 1.1875 | 4 | 9 | 321.75 |
| 1-7/32 | 1.2188 | 4 | 9 | 341.25 |
| 1-15/64 | 1.2344 | 4 | 9 | 341.25 |
| 1-1/4 | 1.2500 | 4 | 9 | 341.25 |
| 18" OVERALL LENGTH | | | | |
| ▶ LIST NO. 118 | | | | |
| 1/4 | .2500 | 1 | 15 | 152.50 |
| 17/64 | .2656 | 1 | 15 | 155.00 |
| 9/32 | .2812 | 1 | 15 | 155.00 |
| 19/64 | .2969 | 1 | 15 | 159.00 |
| 5/16 | .3125 | 1 | 15 | 159.00 |
| 21/64 | .3281 | 1 | 15 | 165.00 |
| 11/32 | .3438 | 1 | 15 | 165.00 |
| 23/64 | .3594 | 1 | 15 | 172.50 |
| 3/8 | .3750 | 1 | 15 | 172.50 |
| 25/64 | .3906 | 1 | 15 | 172.50 |
| 13/32 | .4062 | 1 | 15 | 172.50 |
| 27/64 | .4219 | 1 | 15 | 172.50 |
| 7/16 | .4375 | 1 | 15 | 172.50 |
| 29/64 | .4531 | 1 | 15 | 172.50 |
| 15/32 | .4688 | 1 | 15 | 172.50 |
| 31/64 | .4844 | 2 | 14 | 172.50 |
| 1/2 | .5000 | 2 | 14 | 172.50 |
| 33/64 | .5156 | 2 | 14 | 172.50 |
| 17/32 | .5312 | 2 | 14 | 172.50 |
| 35/64 | .5469 | 2 | 14 | 175.00 |
| 9/16 | .5625 | 2 | 14 | 175.00 |
| 37/64 | .5781 | 2 | 14 | 177.00 |
| 19/32 | .5938 | 2 | 14 | 177.00 |
| 39/64 | .6094 | 2 | 14 | 189.75 |
| 5/8 | .6250 | 2 | 14 | 189.75 |
| 41/64 | .6406 | 2 | 14 | 203.75 |
| 21/32 | .6562 | 2 | 14 | 203.75 |
| 43/64 | .6719 | 2 | 14 | 223.35 |
| 11/16 | .6875 | 2 | 14 | 223.35 |
| 45/64 | .7031 | 2 | 14 | 240.35 |
| 23/32 | .7188 | 2 | 14 | 240.35 |
| 47/64 | .7344 | 2 | 14 | 247.95 |
| 3/4 | .7500 | 2 | 14 | 247.95 |
| 49/64 | .7656 | 2 | 14 | 261.30 |
| 25/32 | .7812 | 2 | 14 | 261.30 |
| 51/64 | .7969 | 3 | 13 | 261.30 |

EXTRA LENGTH DRILLS

TAPER SHANK, 118° POINT



| Size | Dec. Equiv. | Morse Taper No. | Flute Length | Price Each |
|---------------------------|-------------|-----------------|--------------|------------|
| 18" OVERALL LENGTH | | | | |
| ▶ LIST NO. 118 | | | | |
| 13/16 | .8125 | 3 | 13 | 261.30 |
| 53/64 | .8281 | 3 | 13 | 272.75 |
| 27/32 | .8438 | 3 | 13 | 272.75 |
| 55/64 | .8564 | 3 | 13 | 282.50 |
| 7/8 | .8750 | 3 | 13 | 282.50 |
| 57/64 | .8906 | 3 | 13 | 292.40 |
| 29/32 | .9062 | 3 | 13 | 292.40 |
| 59/64 | .9219 | 3 | 13 | 297.30 |
| 15/16 | .9375 | 3 | 13 | 297.30 |
| 61/64 | .9531 | 3 | 13 | 302.20 |
| 31/32 | .9688 | 3 | 13 | 302.20 |
| 63/64 | .9844 | 3 | 13 | 319.37 |
| 1 | 1.0000 | 3 | 13 | 319.37 |
| 1-1/64 | 1.0156 | 3 | 13 | 319.37 |
| 1-1/32 | 1.0312 | 3 | 13 | 346.40 |
| 1-3/64 | 1.0469 | 3 | 13 | 346.40 |
| 1-1/16 | 1.0625 | 3 | 13 | 346.40 |
| 1-5/64 | 1.0781 | 4 | 12 | 350.00 |
| 1-3/32 | 1.0938 | 4 | 12 | 350.00 |
| 1-7/64 | 1.1094 | 4 | 12 | 350.00 |
| 1-1/8 | 1.1250 | 4 | 12 | 350.00 |
| 1-9/64 | 1.1406 | 4 | 12 | 389.25 |
| 1-5/32 | 1.1562 | 4 | 12 | 389.25 |
| 1-11/64 | 1.1719 | 4 | 12 | 390.00 |
| 1-3/16 | 1.1875 | 4 | 12 | 390.00 |
| 1-7/32 | 1.2188 | 4 | 12 | 409.50 |
| 1-15/64 | 1.2344 | 4 | 12 | 409.50 |
| 1-1/4 | 1.2500 | 4 | 12 | 409.50 |
| 1-17/64 | 1.2656 | 4 | 12 | 480.00 |
| 1-9/32 | 1.2813 | 4 | 12 | 463.50 |
| 1-5/16 | 1.3125 | 4 | 12 | 463.50 |
| 1-11/32 | 1.3438 | 4 | 12 | 519.25 |
| 1-23/64 | 1.3594 | 4 | 12 | 519.25 |
| 1-3/8 | 1.3750 | 4 | 12 | 519.25 |
| 1-13/32 | 1.4062 | 4 | 12 | 535.00 |
| 1-7/16 | 1.4375 | 4 | 12 | 535.00 |
| 1-15/32 | 1.4688 | 4 | 12 | 580.00 |
| 1-1/2 | 1.5000 | 4 | 12 | 580.00 |
| 1-9/16 | 1.5625 | 5 | 10 | 646.00 |
| 1-5/8 | 1.6250 | 5 | 10 | 689.00 |
| 1-11/16 | 1.6875 | 5 | 10 | 735.00 |
| 1-3/4 | 1.7500 | 5 | 10 | 825.00 |
| 1-13/16 | 1.8125 | 5 | 10 | 910.00 |
| 1-7/8 | 1.8750 | 5 | 10 | 997.50 |
| 20" OVERALL LENGTH | | | | |
| ▶ LIST NO. 120 | | | | |
| 33/64 | .5156 | 2 | 16 | 220.00 |
| 9/16 | .5625 | 2 | 16 | 225.00 |
| 19/32 | .5938 | 2 | 16 | 225.00 |
| 47/64 | .7344 | 2 | 16 | 269.00 |
| 13/16 | .8125 | 3 | 15 | 289.00 |
| 27/32 | .8438 | 3 | 15 | 299.00 |
| 7/8 | .8750 | 3 | 15 | 320.00 |
| 15/16 | .9375 | 3 | 15 | 325.00 |
| 31/32 | .9688 | 3 | 15 | 349.00 |
| 1-1/16 | 1.0625 | 3 | 15 | 379.00 |
| 1-3/32 | 1.0938 | 4 | 14 | 399.00 |
| 1-1/8 | 1.1250 | 4 | 14 | 399.00 |
| 1-3/16 | 1.1875 | 4 | 14 | 465.00 |
| 1-13/64 | 1.2031 | 4 | 14 | 465.00 |
| 1-7/32 | 1.2188 | 4 | 14 | 465.00 |
| 1-1/4 | 1.2500 | 4 | 14 | 465.00 |
| 1-11/32 | 1.3438 | 4 | 14 | 587.00 |
| 1-13/32 | 1.4062 | 4 | 14 | 625.00 |
| 1-7/16 | 1.4375 | 4 | 14 | 625.00 |
| 1-15/32 | 1.4688 | 4 | 14 | 650.00 |
| 1-3/4 | 1.7500 | 5 | 13 | 910.00 |
| 2-7/32 | 2.2188 | 5 | 13 | 1500.00 |
| 24" OVERALL LENGTH | | | | |
| ▶ LIST NO. 124 | | | | |
| 3/8 | .3750 | 1 | 21 | 242.00 |
| 25/64 | .3906 | 1 | 21 | 242.00 |
| 13/32 | .4062 | 1 | 21 | 242.00 |
| 27/64 | .4219 | 1 | 21 | 242.00 |
| 7/16 | .4375 | 1 | 21 | 242.00 |
| 29/64 | .4531 | 1 | 21 | 242.00 |
| 15/32 | .4688 | 1 | 21 | 242.00 |
| 31/64 | .4844 | 2 | 20 | 242.00 |
| 1/2 | .5000 | 2 | 20 | 242.00 |
| 33/64 | .5156 | 2 | 20 | 251.45 |

| Size | Dec. Equiv. | Morse Taper No. | Flute Length | Price Each |
|---------------------------|-------------|-----------------|--------------|------------|
| 24" OVERALL LENGTH | | | | |
| ▶ LIST NO. 124 | | | | |
| 17/32 | .5312 | 2 | 20 | 251.45 |
| 35/64 | .5469 | 2 | 20 | 251.45 |
| 9/16 | .5625 | 2 | 20 | 251.45 |
| 37/64 | .5781 | 2 | 20 | 251.45 |
| 19/32 | .5938 | 2 | 20 | 251.45 |
| 39/64 | .6094 | 2 | 20 | 251.45 |
| 5/8 | .6250 | 2 | 20 | 251.45 |
| 41/64 | .6406 | 2 | 20 | 251.45 |
| 21/32 | .6562 | 2 | 20 | 251.45 |
| 43/64 | .6719 | 2 | 20 | 265.79 |
| 11/16 | .6875 | 2 | 20 | 265.79 |
| 45/64 | .7031 | 2 | 20 | 274.70 |
| 23/32 | .7188 | 2 | 20 | 274.70 |
| 47/64 | .7344 | 2 | 20 | 290.23 |
| 3/4 | .7500 | 2 | 20 | 290.23 |
| 49/64 | .7656 | 2 | 20 | 299.50 |
| 25/32 | .7812 | 2 | 20 | 299.50 |
| 51/64 | .7969 | 3 | 19 | 315.35 |
| 13/16 | .8125 | 3 | 19 | 315.35 |
| 53/64 | .8281 | 3 | 19 | 362.94 |
| 27/32 | .8438 | 3 | 19 | 362.94 |
| 55/64 | .8594 | 3 | 19 | 379.47 |
| 7/8 | .8750 | 3 | 19 | 379.47 |
| 57/64 | .8906 | 3 | 19 | 379.47 |
| 29/32 | .9062 | 3 | 19 | 379.47 |
| 59/64 | .9219 | 3 | 19 | 395.23 |
| 15/16 | .9375 | 3 | 19 | 395.23 |
| 61/64 | .9531 | 3 | 19 | 435.57 |
| 31/32 | .9688 | 3 | 19 | 435.57 |
| 63/64 | .9844 | 3 | 19 | 443.58 |
| 1 | 1.0000 | 3 | 19 | 443.58 |
| 1-1/64 | 1.0156 | 3 | 19 | 454.96 |
| 1-1/32 | 1.0312 | 3 | 19 | 454.96 |
| 1-3/64 | 1.0469 | 3 | 19 | 454.96 |
| 1-1/16 | 1.0625 | 3 | 19 | 454.96 |
| 1-5/64 | 1.0781 | 4 | 18 | 499.93 |
| 1-3/32 | 1.0938 | 4 | 18 | 499.93 |
| 1-1/8 | 1.1250 | 4 | 18 | 499.93 |
| 1-9/64 | 1.1406 | 4 | 18 | 537.90 |
| 1-5/32 | 1.1562 | 4 | 18 | 537.90 |
| 1-11/64 | 1.1719 | 4 | 18 | 558.10 |
| 1-3/16 | 1.1875 | 4 | 18 | 558.10 |
| 1-13/64 | 1.2031 | 4 | 18 | 564.56 |
| 1-7/32 | 1.2188 | 4 | 18 | 564.56 |
| 1-15/64 | 1.2344 | 4 | 18 | 564.56 |
| 1-1/4 | 1.2500 | 4 | 18 | 564.56 |
| 1-17/64 | 1.2656 | 4 | 18 | 639.26 |
| 1-9/32 | 1.2812 | 4 | 18 | 639.26 |
| 1-5/16 | 1.3125 | 4 | 18 | 639.26 |
| 1-11/32 | 1.3438 | 4 | 18 | 715.00 |
| 1-23/64 | 1.3594 | 4 | 18 | 715.00 |
| 1-3/8 | 1.3750 | 4 | 18 | 715.00 |
| 1-13/32 | 1.4062 | 4 | 18 | 739.20 |
| 1-7/16 | 1.4375 | 4 | 18 | 739.20 |
| 1-15/32 | 1.4688 | 4 | 18 | 801.35 |
| 1-1/2 | 1.5000 | 4 | 18 | 801.35 |
| 1-9/16 | 1.5625 | 5 | 17 | 890.45 |
| 1-5/8 | 1.6250 | 5 | 17 | 890.45 |
| 1-11/16 | 1.6875 | 5 | 17 | 1014.20 |
| 1-3/4 | 1.7500 | 5 | 17 | 1134.10 |
| 1-25/32 | 1.7812 | 5 | 17 | 1254.00 |
| 1-13/16 | 1.8125 | 5 | 17 | 1254.00 |
| 1-7/8 | 1.8750 | 4 | 18 | 1392.60 |
| 1-7/8 | 1.8750 | 5 | 17 | 1392.60 |
| 1-15/16 | 1.9375 | 5 | 17 | 1530.10 |
| 2 | 2.0000 | 4 | 18 | 1658.80 |
| 2 | 2.0000 | 5 | 17 | 1658.80 |
| 2-1/16 | 2.0625 | 5 | 17 | 1787.50 |
| 2-1/8 | 2.1250 | 5 | 17 | 1787.50 |
| 2-3/16 | 2.1875 | 5 | 17 | 1964.60 |
| 2-7/32 | 2.2188 | 5 | 17 | 2140.00 |
| 2-1/4 | 2.2500 | 5 | 17 | 1964.60 |
| 2-5/16 | 2.3125 | 5 | 17 | 2141.70 |
| 2-3/8 | 2.3750 | 5 | 17 | 2141.70 |
| 2-7/16 | 2.4375 | 5 | 17 | 2285.80 |
| 2-1/2 | 2.5000 | 5 | 17 | 2285.80 |
| 2-9/16 | 2.5625 | 5 | 17 | 2429.90 |
| 2-5/8 | 2.6250 | 5 | 17 | 2429.90 |
| 2-11/16 | 2.6875 | 5 | 17 | 2631.20 |
| 2-3/4 | 2.7500 | 5 | 17 | 2631.20 |
| 2-13/16 | 2.8125 | 5 | 17 | 2832.50 |
| 2-7/8 | 2.8750 | 5 | 17 | 2832.50 |
| 2-15/16 | 2.9375 | 5 | 17 | 3236.20 |
| 3 | 3.0000 | 5 | 17 | 3236.20 |



THE WORLD'S LARGEST AND MOST EXTENSIVE INVENTORY OF USA MANUFACTURED EXTRA LONG TAPER SHANK DRILLS!

These drills are utilized in deep hole or long reach drilling applications in many kinds of materials.

| Size | Dec. Equiv. | Morse Taper No. | Flute Length | Price Each |
|---------------------------|-------------|-----------------|--------------|------------|
| 30" OVERALL LENGTH | | | | |
| ▶ LIST NO. 130 | | | | |
| 3/4 | .7500 | 2 | 26 | 399.00 |
| 13/16 | .8125 | 3 | 25 | 470.00 |
| 7/8 | .8750 | 3 | 25 | 539.00 |
| 15/16 | .9375 | 3 | 25 | 583.00 |
| 1 | 1.0000 | 3 | 25 | 642.00 |
| 1-1/16 | 1.0625 | 3 | 25 | 642.00 |
| 1-1/8 | 1.1250 | 4 | 24 | 733.00 |
| 1-3/16 | 1.1875 | 4 | 24 | 799.00 |
| 1-1/4 | 1.2500 | 4 | 24 | 865.00 |
| 1-5/16 | 1.3125 | 4 | 24 | 982.00 |
| 1-3/8 | 1.3750 | 4 | 24 | 1069.00 |
| 1-7/16 | 1.4375 | 4 | 24 | 1100.00 |
| 1-1/2 | 1.5000 | 4 | 24 | 1199.00 |
| 1-9/16 | 1.5625 | 5 | 23 | 1339.00 |
| 1-5/8 | 1.6250 | 5 | 23 | 1339.00 |
| 1-11/16 | 1.6875 | 5 | 23 | 1480.00 |
| 1-3/4 | 1.7500 | 5 | 23 | 1480.00 |
| 1-13/16 | 1.8125 | 5 | 23 | 1657.00 |
| 1-7/8 | 1.8750 | 5 | 23 | 1657.00 |
| 1-15/16 | 1.9375 | 5 | 23 | 1833.00 |
| 2 | 2.0000 | 5 | 23 | 1885.00 |
| 2-1/16 | 2.0625 | 5 | 23 | 2080.00 |
| 2-1/8 | 2.1250 | 5 | 23 | 2080.00 |
| 2-3/16 | 2.1875 | 5 | 23 | 2232.00 |
| 2-1/4 | 2.2500 | 5 | 23 | 2232.00 |
| 2-5/16 | 2.3125 | 5 | 23 | 2435.00 |
| 2-3/8 | 2.3750 | 5 | 23 | 2435.00 |
| 2-7/16 | 2.4375 | 5 | 23 | 2599.00 |
| 2-1/2 | 2.5000 | 5 | 23 | 2599.00 |
| 2-5/8 | 2.6250 | 5 | 23 | 2759.00 |
| 2-3/4 | 2.7500 | 5 | 23 | 2989.00 |
| 2-7/8 | 2.8750 | 5 | 23 | 3159.00 |
| 3 | 3.0000 | 5 | 23 | 3680.00 |
| 3-1/8 | 3.1250 | 5 | 23 | 4180.00 |
| 3-1/4 | 3.2500 | 5 | 23 | 5043.00 |
| 3-3/8 | 3.3750 | 5 | 23 | 6766.00 |
| 3-1/2 | 3.5000 | 5 | 23 | 8640.00 |
| 36" OVERALL LENGTH | | | | |
| ▶ LIST NO. 136 | | | | |
| 1-1/2 | 1.5000 | 4 | 30 | 1474.00 |
| 1-3/4 | 1.7500 | 5 | 29 | 1819.00 |
| 2 | 2.0000 | 5 | 29 | 2435.00 |
| 2-1/8 | 2.1250 | 5 | 29 | 2843.00 |
| 2-1/4 | 2.2500 | 5 | 29 | 2844.00 |
| 2-3/8 | 2.3750 | 5 | 29 | 3408.00 |
| 2-1/2 | 2.5000 | 5 | 29 | 3408.00 |
| 2-5/8 | 2.6250 | 5 | 29 | 3864.00 |
| 2-3/4 | 2.7500 | 5 | 29 | 4507.00 |
| 3 | 3.0000 | 5 | 29 | 5146.00 |
| 3-1/8 | 3.1250 | 5 | 29 | 5505.00 |
| 3-1/4 | 3.2500 | 5 | 29 | 6750.00 |
| 3-3/8 | 3.3750 | 5 | 29 | 9870.00 |
| 3-1/2 | 3.5000 | 5 | 29 | 11853.00 |



HIGH SPEED STEEL

OIL HOLE DRILLS

● TAPER SHANK — STANDARD LENGTH, 118° NOTCHED POINT LIST NO. 299



Oil Hole Drills feature coolant passages throughout the length of the body. These allow a coolant (air, oil or vapor mist) to reach the cutting edges. The resulting flow cools and lubricates the cutting edges and also aids in the extraction of chips.

| Size | Dec. Equiv. | Flute Length | Overall Length | Morse Taper No. | Price Each |
|-------|-------------|--------------|----------------|-----------------|------------|
| 3/8 | .3750 | 3-1/2 | 7-5/8 | 2 | 298.35 |
| 25/64 | .3906 | 3-5/8 | 8 | 2 | 298.35 |
| 13/32 | .4062 | 3-5/8 | 8 | 2 | 298.35 |
| 27/64 | .4219 | 3-7/8 | 8-1/8 | 2 | 298.35 |
| 7/16 | .4375 | 3-7/8 | 8-3/8 | 2 | 298.35 |
| 29/64 | .4531 | 4-1/8 | 8-3/4 | 2 | 298.35 |
| 15/32 | .4688 | 4-1/8 | 8-3/4 | 3 | 279.65 |
| 31/64 | .4844 | 4-3/8 | 9 | 3 | 279.65 |
| 1/2 | .5000 | 4-3/8 | 9 | 3 | 279.65 |
| 33/64 | .5156 | 4-5/8 | 9-1/4 | 3 | 279.65 |
| 17/32 | .5312 | 4-5/8 | 9-1/4 | 3 | 279.65 |
| 35/64 | .5469 | 4-7/8 | 9-1/2 | 3 | 279.65 |
| 9/16 | .5625 | 4-7/8 | 9-1/2 | 3 | 250.24 |
| 37/64 | .5781 | 4-7/8 | 9-1/2 | 3 | 279.65 |
| 19/32 | .5938 | 4-7/8 | 9-1/2 | 3 | 250.24 |
| 39/64 | .6094 | 4-7/8 | 9-1/2 | 3 | 250.24 |
| 5/8 | .6250 | 4-7/8 | 9-1/2 | 3 | 250.24 |
| 41/64 | .6406 | 5-1/8 | 9-3/4 | 3 | 250.24 |
| 21/32 | .6562 | 5-1/8 | 9-3/4 | 3 | 250.64 |
| 43/64 | .6719 | 5-3/8 | 10 | 3 | 254.14 |
| 11/16 | .6875 | 5-3/8 | 10 | 3 | 254.14 |
| 45/64 | .7031 | 5-5/8 | 10-1/4 | 3 | 257.64 |
| 23/32 | .7188 | 5-5/8 | 10-1/4 | 3 | 257.64 |
| 47/64 | .7344 | 5-7/8 | 10-1/2 | 3 | 257.64 |
| 3/4 | .7500 | 5-7/8 | 10-1/2 | 3 | 257.64 |
| 49/64 | .7656 | 6 | 10-5/8 | 3 | 260.16 |
| 25/32 | .7812 | 6 | 10-5/8 | 3 | 260.16 |
| 51/64 | .7969 | 6-1/8 | 10-3/4 | 3 | 260.16 |
| 13/16 | .8125 | 6-1/8 | 10-3/4 | 3 | 260.16 |
| 53/64 | .8281 | 6-1/8 | 10-3/4 | 3 | 283.11 |
| 27/32 | .8438 | 6-1/8 | 10-3/4 | 3 | 283.11 |
| 55/64 | .8594 | 6-1/8 | 10-3/4 | 3 | 283.11 |
| 7/8 | .8750 | 6-1/8 | 10-3/4 | 3 | 283.11 |
| 57/64 | .8906 | 6-1/8 | 10-3/4 | 3 | 283.96 |
| 29/32 | .9062 | 6-1/8 | 10-3/4 | 3 | 283.96 |
| 59/64 | .9219 | 6-1/8 | 10-3/4 | 3 | 283.96 |
| 15/16 | .9375 | 6-1/8 | 10-3/4 | 3 | 283.96 |
| 61/64 | .9531 | 6-3/8 | 11 | 3 | 334.82 |
| 31/32 | .9688 | 6-3/8 | 11 | 3 | 334.82 |

| Size | Dec. Equiv. | Flute Length | Overall Length | Morse Taper No. | Price Each |
|---------|-------------|--------------|----------------|-----------------|------------|
| 63/64 | .9844 | 6-3/8 | 11 | 3 | 334.82 |
| 1 | 1.0000 | 6-3/8 | 11 | 3 | 334.82 |
| 1-1/64 | 1.0156 | 6-1/2 | 11-1/8 | 3 | 362.70 |
| 1-1/32 | 1.0312 | 6-1/2 | 11-1/8 | 3 | 362.70 |
| 1-3/64 | 1.0469 | 6-5/8 | 11-1/4 | 3 | 362.70 |
| 1-1/16 | 1.0625 | 6-5/8 | 11-1/4 | 3 | 362.70 |
| 1-1/16 | 1.0625 | 6-5/8 | 12-1/4 | 4* | 362.70 |
| 1-5/64 | 1.0781 | 6-7/8 | 12-1/2 | 4 | 428.43 |
| 1-3/32 | 1.0938 | 6-7/8 | 12-1/2 | 4 | 428.43 |
| 1-7/64 | 1.1094 | 7-1/8 | 12-3/4 | 4 | 468.61 |
| 1-1/8 | 1.1250 | 7-1/8 | 12-3/4 | 4 | 468.61 |
| 1-9/64 | 1.1406 | 7-1/4 | 12-7/8 | 4 | 468.61 |
| 1-5/32 | 1.1562 | 7-1/4 | 12-7/8 | 4 | 468.61 |
| 1-11/64 | 1.1719 | 7-3/8 | 13 | 4 | 471.50 |
| 1-3/16 | 1.1875 | 7-3/8 | 13 | 4 | 471.50 |
| 1-13/64 | 1.2031 | 7-1/2 | 13-1/8 | 4 | 536.54 |
| 1-7/32 | 1.2188 | 7-1/2 | 13-1/8 | 4 | 536.54 |
| 1-15/64 | 1.2344 | 7-7/8 | 13-1/2 | 4 | 536.54 |
| 1-1/4 | 1.2500 | 7-7/8 | 13-1/2 | 4 | 536.54 |
| 1-17/64 | 1.2656 | 8-1/2 | 14-1/8 | 4 | 652.20 |
| 1-9/32 | 1.2812 | 8-1/2 | 14-1/8 | 4 | 652.20 |
| 1-19/64 | 1.2969 | 8-5/8 | 14-1/4 | 4 | 701.69 |
| 1-5/16 | 1.3125 | 8-5/8 | 14-1/4 | 4 | 701.69 |
| 1-21/64 | 1.3281 | 8-3/4 | 14-3/8 | 4 | 701.69 |
| 1-11/32 | 1.3438 | 8-3/4 | 14-3/8 | 4 | 701.69 |
| 1-23/64 | 1.3594 | 8-7/8 | 14-1/2 | 4 | 776.71 |
| 1-3/8 | 1.3750 | 8-7/8 | 14-1/2 | 4 | 776.71 |
| 1-13/32 | 1.4062 | 9 | 14-5/8 | 4 | 776.71 |
| 1-7/16 | 1.4375 | 9-1/8 | 14-3/4 | 4 | 776.71 |
| 1-15/32 | 1.4688 | 9-1/4 | 14-7/8 | 4 | 810.79 |
| 1-1/2 | 1.5000 | 9-3/8 | 15 | 4 | 810.79 |
| 1-9/16 | 1.5625 | 9-5/8 | 15-1/4 | 4 | 849.35 |
| 1-5/8 | 1.6250 | 10 | 15-5/8 | 4 | 913.47 |
| 1-11/16 | 1.6875 | 10-1/8 | 15-3/4 | 4 | 1073.73 |
| 1-3/4 | 1.7500 | 10-1/8 | 16 | 4 | 1105.78 |
| 1-13/16 | 1.8125 | 10-1/8 | 17-1/8 | 5 | 1153.83 |
| 1-7/8 | 1.8750 | 10-3/8 | 17-3/8 | 5 | 1217.96 |
| 1-15/16 | 1.9375 | 10-3/8 | 17-3/8 | 5 | 1290.06 |
| 2 | 2.0000 | 10-3/8 | 17-3/8 | 5 | 1322.12 |

*Shank larger than Standard.

● TAPER SHANK — EXTRA LENGTH, 118° NOTCHED POINT



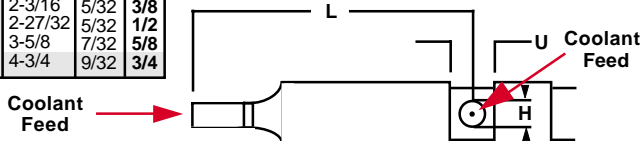
| Size | Dec. Equiv. | Morse Taper No. | Price Each | | |
|-------|-------------|-----------------|---|---|--|
| | | | 10-1/2" OAL 6" Flute List No. 295 | 12-1/2" OAL 8" Flute List No. 296 | 14-1/2" OAL 10" Flute List No. 297 |
| 31/64 | .4844 | 3 | 306.95 | — | — |
| 1/2 | .5000 | 3 | 306.95 | 333.68 | 397.02 |
| 33/64 | .5156 | 3 | 306.95 | 333.68 | 397.02 |
| 17/32 | .5312 | 3 | 306.95 | 333.68 | 397.02 |
| 9/16 | .5625 | 3 | — | 333.68 | 397.02 |
| 19/32 | .5938 | 3 | — | 333.68 | 397.02 |
| 5/8 | .6250 | 3 | — | 333.68 | 397.02 |
| 41/64 | .6406 | 3 | — | 333.68 | 397.02 |
| 21/32 | .6562 | 3 | — | 333.68 | 397.02 |
| 11/16 | .6875 | 3 | — | 333.68 | 397.02 |
| 23/32 | .7188 | 3 | — | 333.68 | 397.02 |
| 47/64 | .7344 | 3 | — | 333.68 | 397.02 |
| 3/4 | .7500 | 3 | — | 333.68 | 397.02 |
| 49/64 | .7656 | 3 | — | 350.32 | 412.67 |

| Size | Dec. Equiv. | Morse Taper No. | Price Each | | |
|---------|-------------|-----------------|---|---|--|
| | | | 10-1/2" OAL 6" Flute List No. 295 | 12-1/2" OAL 8" Flute List No. 296 | 14-1/2" OAL 10" Flute List No. 297 |
| 25/32 | .7812 | 3 | — | 350.38 | 412.00 |
| 13/16 | .8125 | 3 | — | 350.38 | 412.00 |
| 27/32 | .8438 | 3 | — | 359.32 | 423.80 |
| 7/8 | .8750 | 3 | — | 363.90 | 423.80 |
| 29/32 | .9062 | 3 | — | 363.90 | 431.70 |
| 15/16 | .9375 | 3 | — | 363.90 | 431.70 |
| 31/32 | .9688 | 3 | — | 383.24 | 448.03 |
| 63/64 | .9844 | 3 | — | 416.62 | 485.16 |
| 1 | 1.0000 | 3 | — | 416.62 | 485.16 |
| 1-1/32 | 1.0312 | 3 | — | 431.81 | 501.64 |
| 1-1/16 | 1.0625 | 3 | — | — | 501.64 |
| 1-1/8* | 1.1250 | 4 | — | — | 629.20 |
| 1-3/16* | 1.1875 | 4 | — | — | 674.96 |
| 1-1/4* | 1.2500 | 4 | — | — | 748.59 |

*15-1/2 Overall

TAPER SHANK DRILL COOLANT ENTRY POINTS

| TAPER | L | H | U |
|-----------|---------|------|-----|
| #2 M.T.S. | 2-3/16 | 5/32 | 3/8 |
| #3 M.T.S. | 2-27/32 | 5/32 | 1/2 |
| #4 M.T.S. | 3-5/8 | 7/32 | 5/8 |
| #5 M.T.S. | 4-3/4 | 9/32 | 3/4 |



COOLANT INDUCER SOCKET

◆ LIST NO. 299H

For use with Taper Shank Oil Hole Drills

| Morse Taper Hole & Shank Size | Overall Length | Price Each |
|-------------------------------|----------------|------------|
| 2 | 6-7/8 | 110.00 |
| 3 | 8-1/2 | 134.50 |
| 4 | 10-1/2 | 299.00 |
| 5 | 13-3/4 | 575.00 |

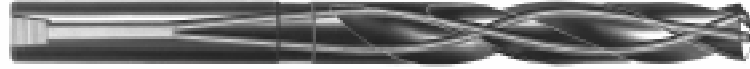


OIL HOLE DRILLS

STRAIGHT SHANK



- LIST NO. 499 — 118° NOTCHED POINT
- LIST NO. 499SL — 118° NOTCHED POINT, SLOW SPIRAL



These drills are designed with oil holes the length of the land section of the drill to deliver a high pressure oil flow to the cutting edges. The resulting coolant flow flushes chips out of the hole to reduce heat and chip packing problems common to deep hole drilling applications. Surface speeds may be increased 30% or more over standard drill styles.

| Size | Dec. Equiv. | Approx. Flute Length | Overall Length | Price Each | |
|-------|-------------|----------------------|----------------|--------------|----------------|
| | | | | List No. 499 | List No. 499SL |
| 15/64 | .2344 | 3-3/8 | 5-3/4 | 186.49 | 186.49 |
| 1/4 | .2500 | 3-3/4 | 6-1/8 | 186.49 | 186.49 |
| 9/32 | .2812 | 4 | 6-3/8 | 186.49 | 186.49 |
| 19/64 | .2969 | 4 | 6-3/8 | 186.49 | 186.49 |
| 5/16 | .3125 | 4 | 6-3/8 | 186.49 | 186.49 |
| 21/64 | .3281 | 4-1/8 | 6-1/2 | 186.49 | — |
| 11/32 | .3438 | 4-1/8 | 6-1/2 | 186.49 | — |
| 23/64 | .3594 | 4-1/4 | 6-3/4 | 186.49 | — |
| 3/8 | .3750 | 4-1/4 | 6-3/4 | 185.63 | 185.63 |
| 25/64 | .3906 | 4-3/8 | 7 | 189.10 | 189.10 |
| 13/32 | .4062 | 4-3/8 | 7 | 189.10 | 189.10 |
| 27/64 | .4219 | 4-5/8 | 7-1/4 | 196.02 | 196.02 |
| 7/16 | .4375 | 4-5/8 | 7-1/4 | 196.02 | 196.02 |
| 29/64 | .4531 | 4-7/8 | 7-1/2 | 200.14 | 200.14 |
| 15/32 | .4688 | 4-7/8 | 7-1/2 | 200.14 | 200.14 |
| 31/64 | .4844 | 5 | 7-3/4 | 202.68 | 202.68 |
| 1/2 | .5000 | 5 | 7-3/4 | 202.68 | 202.68 |
| 33/64 | .5156 | 5-1/4 | 8 | 205.67 | 205.67 |
| 17/32 | .5312 | 5-1/4 | 8 | 205.67 | 205.67 |
| 35/64 | .5469 | 5-3/8 | 8-1/4 | 210.49 | 210.49 |
| 9/16 | .5625 | 5-3/8 | 8-1/4 | 210.49 | 210.49 |
| 37/64 | .5781 | 5-5/8 | 8-1/2 | 212.85 | 212.85 |
| 19/32 | .5938 | 5-5/8 | 8-1/2 | 212.85 | 212.85 |
| 39/64 | .6094 | 5-3/4 | 8-3/4 | 223.14 | 223.14 |
| 5/8 | .6250 | 5-3/4 | 8-3/4 | 223.14 | 223.14 |
| 41/64 | .6406 | 5-7/8 | 9 | 223.14 | 223.14 |
| 21/32 | .6562 | 5-7/8 | 9 | 223.14 | 223.14 |
| 43/64 | .6719 | 6 | 9-1/4 | 228.20 | 228.20 |
| 11/16 | .6875 | 6 | 9-1/4 | 228.20 | 228.20 |
| 45/64 | .7031 | 6-3/16 | 9-1/2 | 234.14 | 234.14 |
| 23/32 | .7188 | 6-3/16 | 9-1/2 | 234.14 | 234.14 |
| 47/64 | .7344 | 6-3/8 | 9-3/4 | 250.34 | 250.34 |
| 3/4 | .7500 | 6-3/8 | 9-3/4 | 250.34 | 250.34 |
| 49/64 | .7656 | 6-1/2 | 9-7/8 | 254.63 | 254.63 |
| 25/32 | .7812 | 6-1/2 | 9-7/8 | 254.63 | 254.63 |
| 51/64 | .7969 | 6-5/8 | 10 | 260.60 | 260.60 |
| 13/16 | .8125 | 6-5/8 | 10 | 260.60 | 260.60 |
| 53/64 | .8281 | 6-3/4 | 10-1/4 | 265.75 | 265.75 |
| 27/32 | .8438 | 6-3/4 | 10-1/4 | 265.75 | 265.75 |
| 55/64 | .8594 | 7 | 10-1/2 | 287.70 | 287.70 |
| 7/8 | .8750 | 7 | 10-1/2 | 287.70 | 287.70 |
| 57/64 | .8906 | 7 | 10-5/8 | 308.24 | 308.24 |
| 29/32 | .9062 | 7 | 10-5/8 | 308.24 | 308.24 |

| Size | Dec. Equiv. | Approx. Flute Length | Overall Length | Price Each | |
|---------|-------------|----------------------|----------------|--------------|----------------|
| | | | | List No. 499 | List No. 499SL |
| 59/64 | .9219 | 7 | 10-3/4 | 329.55 | 329.55 |
| 15/16 | .9375 | 7 | 10-3/4 | 329.55 | 329.55 |
| 61/64 | .9531 | 7-1/8 | 10-7/8 | 345.66 | 345.66 |
| 31/32 | .9688 | 7-1/8 | 10-7/8 | 345.66 | 345.66 |
| 63/64 | .9844 | 7-3/16 | 11 | 362.80 | 362.80 |
| 1 | 1.0000 | 7-3/16 | 11 | 362.80 | 362.80 |
| 1-1/64 | 1.0156 | 7-5/16 | 11-1/8 | 383.12 | — |
| 1-1/32 | 1.0312 | 7-5/16 | 11-1/8 | 383.12 | — |
| 1-3/64 | 1.0469 | 7-3/8 | 11-1/4 | 398.62 | — |
| 1-1/16 | 1.0625 | 7-3/8 | 11-1/4 | 398.62 | 398.62 |
| 1-5/64 | 1.0781 | 7-5/8 | 11-1/2 | 414.72 | — |
| 1-3/32 | 1.0938 | 7-5/8 | 11-1/2 | 414.72 | — |
| 1-7/64 | 1.1094 | 7-7/8 | 11-3/4 | 435.91 | — |
| 1-1/8 | 1.1250 | 7-7/8 | 11-3/4 | 435.91 | 435.91 |
| 1-9/64 | 1.1406 | 8 | 11-7/8 | 457.29 | — |
| 1-5/32 | 1.1562 | 8 | 11-7/8 | 457.29 | — |
| 1-11/64 | 1.1719 | 8-1/8 | 12 | 478.60 | — |
| 1-3/16 | 1.1875 | 8-1/8 | 12 | 478.60 | 478.60 |
| 1-13/64 | 1.2031 | 8-1/8 | 12-1/8 | 499.82 | — |
| 1-7/32 | 1.2188 | 8-1/8 | 12-1/8 | 499.82 | — |
| 1-15/64 | 1.2344 | 8-1/2 | 12-1/2 | 520.31 | — |
| 1-1/4 | 1.2500 | 8-1/2 | 12-1/2 | 520.31 | 520.31 |
| 1-17/64 | 1.2656 | 9-1/4 | 14-1/8 | 553.80 | — |
| 1-9/32 | 1.2812 | 9-1/4 | 14-1/8 | 553.80 | — |
| 1-19/64 | 1.2969 | 9-1/4 | 14-1/4 | 577.31 | — |
| 1-5/16 | 1.3125 | 9-1/4 | 14-1/4 | 577.31 | 577.31 |
| 1-21/64 | 1.3281 | 9-1/2 | 14-3/8 | 614.50 | — |
| 1-11/32 | 1.3438 | 9-1/2 | 14-3/8 | 614.50 | — |
| 1-23/64 | 1.3594 | 9-1/2 | 14-1/2 | 648.09 | — |
| 1-3/8 | 1.3750 | 9-1/2 | 14-1/2 | 648.09 | 648.09 |
| 1-13/32 | 1.4062 | 9-1/2 | 14-5/8 | 725.51 | — |
| 1-7/16 | 1.4375 | 9-1/8 | 14-3/4 | 725.51 | 725.51 |
| 1-15/32 | 1.4688 | 9-1/8 | 14-7/8 | 785.02 | — |
| 1-1/2 | 1.5000 | 9-5/8 | 15 | 785.02 | 785.02 |
| 1-9/16 | 1.5625 | 9-5/8 | 15-1/4 | 870.22 | — |
| 1-5/8 | 1.6250 | 9-7/8 | 15-5/8 | 941.85 | — |
| 1-11/16 | 1.6875 | 10 | 15-3/4 | 1069.90 | — |
| 1-3/4 | 1.7500 | 10-1/2 | 16-1/4 | 1130.22 | — |
| 1-13/16 | 1.8125 | 10-1/2 | 16-1/4 | 1139.45 | — |
| 1-7/8 | 1.8750 | 10-3/4 | 16-1/2 | 1253.07 | — |
| 1-15/16 | 1.9375 | 10-3/4 | 16-5/8 | 1345.76 | — |
| 2 | 2.0000 | 10-3/4 | 16-5/8 | 1413.36 | — |

Specials can be made to print. Please inquire.

STRAIGHT SHANK — LONG LENGTH

- LIST NO. 499X

| Size | Dec. Equiv. | Approx. Flute Length | Overall Length | Price Each |
|-------|-------------|----------------------|----------------|------------|
| 13/64 | .2031 | 4-3/4 | 7-1/8 | 275.00 |
| 7/32 | .2188 | 4-3/4 | 7-1/8 | 289.70 |
| 15/64 | .2344 | 5-1/8 | 7-1/2 | 289.70 |
| 1/4 | .2500 | 5-1/2 | 7-1/2 | 338.00 |
| 17/64 | .2656 | 5-1/2 | 7-7/8 | 338.00 |
| 9/32 | .2812 | 5-1/2 | 7-7/8 | 338.00 |
| 19/64 | .2969 | 5-7/8 | 8-1/4 | 338.00 |
| 5/16 | .3125 | 5-7/8 | 8-1/4 | 338.00 |

| Size | Dec. Equiv. | Approx. Flute Length | Overall Length | Price Each |
|-------|-------------|----------------------|----------------|------------|
| 21/64 | .3281 | 6-1/4 | 8-5/8 | 345.00 |
| 11/32 | .3438 | 6-1/4 | 8-5/8 | 345.00 |
| 23/64 | .3594 | 6-3/8 | 8-7/8 | 345.00 |
| 3/8 | .3750 | 6-3/8 | 8-7/8 | 337.40 |
| 7/16 | .4375 | 7 | 9-5/8 | 356.20 |
| 31/64 | .4844 | 7-1/2 | 10-1/4 | 368.33 |
| 1/2 | .5000 | 7-1/2 | 10-1/4 | 368.33 |



HIGH SPEED STEEL

CORE DRILLS

STRAIGHT SHANK



Used to enlarge and straighten cored or drilled holes. Because of their rigidity, these tools generate closer tolerance holes and better finish than standard drills.

They may be used to enlarge holes as small as 60% of the tool diameter.

► LIST NO. 421 — THREE FLUTE

| Size | Dec. Equiv. | Flute Length | Overall Length | Price Each |
|-------|-------------|--------------|----------------|------------|
| 1/4 | .2500 | 3-3/4 | 6-1/8 | 35.69 |
| 17/64 | .2656 | 3-7/8 | 6-1/4 | 38.12 |
| 9/32 | .2812 | 3-7/8 | 6-1/4 | 37.72 |
| 5/16 | .3125 | 4 | 6-3/8 | 38.30 |
| 11/32 | .3438 | 4-1/8 | 6-1/2 | 40.85 |
| 23/64 | .3594 | 4-1/4 | 6-3/4 | 44.90 |
| 3/8 | .3750 | 4-1/4 | 6-3/4 | 42.00 |
| 13/32 | .4062 | 4-3/8 | 7 | 48.20 |
| 7/16 | .4375 | 4-5/8 | 7-1/4 | 46.15 |
| 15/32 | .4688 | 4-3/4 | 7-1/2 | 54.00 |
| 31/64 | .4844 | 4-3/4 | 7-3/4 | 60.22 |
| 1/2 | .5000 | 4-3/4 | 7-3/4 | 54.70 |
| 17/32 | .5312 | 4-3/4 | 8 | 65.45 |
| 9/16 | .5625 | 4-7/8 | 8-1/4 | 64.75 |
| 19/32 | .5938 | 4-7/8 | 8-3/4 | 74.30 |

| Size | Dec. Equiv. | Flute Length | Overall Length | Price Each |
|---------|-------------|--------------|----------------|------------|
| 5/8 | .6250 | 4-7/8 | 8-3/4 | 79.80 |
| 21/32 | .6562 | 5-1/8 | 9 | 81.50 |
| 11/16 | .6875 | 5-3/8 | 9-1/4 | 88.78 |
| 23/32 | .7188 | 5-5/8 | 9-1/2 | 97.50 |
| 3/4 | .7500 | 5-7/8 | 9-3/4 | 100.70 |
| 25/32 | .7812 | 6 | 9-7/8 | 109.76 |
| 7/8 | .8750 | 6-1/8 | 10 | 119.64 |
| 29/32 | .9062 | 6-1/8 | 10 | 130.41 |
| 31/32 | .9688 | 6-3/8 | 11 | 137.50 |
| 1-7/16 | 1.4375 | 9-1/8 | 14-3/4 | 142.15 |
| 1-9/16 | 1.5625 | 9-5/8 | 15-1/4 | 520.00 |
| 1-5/8 | 1.6250 | 9-7/8 | 15-5/8 | 543.75 |
| 1-13/16 | 1.8125 | 10-1/2 | 16-1/4 | 677.60 |
| 1-27/32 | 1.8438 | 10-3/4 | 16-1/2 | 725.58 |

Additional 64th sizes available on request.

STRAIGHT SHANK



► LIST NO. 422 — FOUR FLUTE

| Size | Dec. Equiv. | Flute Length | Overall Length | Price Each |
|-------|-------------|--------------|----------------|------------|
| 15/64 | .2344 | 3-3/4 | 6-1/8 | 35.67 |
| 1/4 | .2500 | 3-3/4 | 6-1/8 | 34.64 |
| 17/64 | .2656 | 3-7/8 | 6-1/4 | 37.80 |
| 9/32 | .2812 | 3-7/8 | 6-1/4 | 36.64 |
| 5/16 | .3125 | 4 | 6-3/8 | 37.20 |
| 21/64 | .3281 | 4-1/8 | 6-1/2 | 44.50 |
| 11/32 | .3438 | 4-1/8 | 6-1/2 | 39.75 |
| 23/64 | .3594 | 4-1/4 | 6-3/4 | 46.00 |
| 3/8 | .3750 | 4-1/4 | 6-3/4 | 40.90 |
| 13/32 | .4062 | 4-3/8 | 7 | 44.90 |
| 27/64 | .4219 | 4-5/8 | 7-1/4 | 48.80 |
| 7/16 | .4375 | 4-5/8 | 7-1/4 | 44.90 |
| 29/64 | .4531 | 4-3/4 | 7-1/2 | 52.28 |
| 15/32 | .4688 | 4-3/4 | 7-1/2 | 50.17 |
| 1/2 | .5000 | 4-3/4 | 7-3/4 | 51.25 |
| 33/64 | .5156 | 4-3/4 | 8 | 57.29 |
| 17/32 | .5312 | 4-3/4 | 8 | 53.70 |
| 9/16* | .5625 | 4-7/8 | 8-1/4 | 56.50 |
| 19/32 | .5938 | 4-7/8 | 8-3/4 | 67.95 |
| 5/8 | .6250 | 4-7/8 | 8-3/4 | 71.95 |
| 41/64 | .6406 | 5-1/8 | 9 | 81.40 |
| 21/32 | .6562 | 5-1/8 | 9 | 77.00 |
| 11/16 | .6875 | 5-3/8 | 9-1/4 | 82.50 |
| 23/32 | .7188 | 5-5/8 | 9-1/2 | 81.25 |
| 3/4 | .7500 | 5-7/8 | 9-3/4 | 86.75 |
| 49/64 | .7656 | 6 | 9-7/8 | 109.50 |
| 25/32 | .7812 | 6 | 9-7/8 | 103.50 |
| 13/16 | .8125 | 6-1/8 | 10 | 117.75 |
| 27/32 | .8438 | 6-1/8 | 10 | 122.87 |
| 7/8 | .8750 | 6-1/8 | 10 | 117.50 |
| 57/64 | .8906 | 6-1/8 | 10 | 130.40 |

| Size | Dec. Equiv. | Flute Length | Overall Length | Price Each |
|---------|-------------|--------------|----------------|------------|
| 29/32 | .9062 | 6-1/8 | 10 | 125.00 |
| 15/16 | .9375 | 6-1/8 | 10-3/4 | 138.90 |
| 31/32 | .9688 | 6-3/8 | 11 | 155.50 |
| 1 | 1.0000 | 6-3/8 | 11 | 148.60 |
| 1-1/32 | 1.0312 | 6-1/2 | 11-1/8 | 224.90 |
| 1-1/16 | 1.0625 | 6-5/8 | 11-1/4 | 227.50 |
| 1-3/32 | 1.0938 | 6-7/8 | 11-1/2 | 230.44 |
| 1-1/8 | 1.1250 | 7-1/8 | 11-3/4 | 235.70 |
| 1-9/64 | 1.1406 | 7-1/4 | 11-7/8 | 240.55 |
| 1-5/32 | 1.1562 | 7-1/4 | 11-7/8 | 248.96 |
| 1-3/16 | 1.1875 | 7-3/8 | 12 | 258.70 |
| 1-7/32 | 1.2188 | 7-1/2 | 12-1/8 | 268.44 |
| 1-1/4 | 1.2500 | 7-7/8 | 12-1/2 | 277.50 |
| 1-9/32 | 1.2812 | 8-1/2 | 14-1/8 | 322.50 |
| 1-5/16 | 1.3125 | 8-5/8 | 14-1/4 | 340.60 |
| 1-11/32 | 1.3438 | 8-3/4 | 14-3/8 | 350.70 |
| 1-3/8 | 1.3750 | 8-7/8 | 14-1/2 | 360.22 |
| 1-13/32 | 1.4062 | 9 | 14-5/8 | 368.50 |
| 1-7/16 | 1.4375 | 9-1/8 | 14-3/4 | 384.00 |
| 1-15/32 | 1.4688 | 9-1/4 | 14-7/8 | 399.60 |
| 1-1/2 | 1.5000 | 9-3/8 | 15 | 420.50 |
| 1-9/16 | 1.5625 | 9-5/8 | 15-1/4 | 493.16 |
| 1-5/8 | 1.6250 | 9-7/8 | 15-5/8 | 547.50 |
| 1-11/16 | 1.6875 | 10-1/8 | 16 | 630.00 |
| 1-3/4 | 1.7500 | 10-1/2 | 16-1/4 | 660.11 |
| 1-49/64 | 1.7656 | 10-1/2 | 16-1/4 | 730.00 |
| 1-13/16 | 1.1875 | 10-1/2 | 16-1/4 | 722.00 |
| 1-7/8 | 1.8750 | 10-5/8 | 16-1/4 | 715.45 |
| 1-15/16 | 1.9375 | 10-3/4 | 16-5/8 | 760.20 |
| 2 | 2.0000 | 10-3/4 | 17-1/4 | 799.25 |

Additional 64th sizes available on request.

* 9/16 with 1/2" shank in stock \$56.50 each.

CORE DRILLS



Used to enlarge and straighten cored or drilled holes. Because of their rigidity, these tools generate closer tolerance holes and better finish than standard drills. They may be used to enlarge holes as small as 60% of the tool diameter.



► LIST NO. 521 — THREE FLUTE

TAPER SHANK



► LIST NO. 522 — FOUR FLUTE

| Size | Dec. Equiv. | Flute Length | Overall Length | Morse Taper No. | Price Each | |
|---------|-------------|--------------|----------------|-----------------|--------------|--------------|
| | | | | | List No. 521 | List No. 522 |
| 1/4 | .2500 | 2-7/8 | 6-1/8 | 1 | 29.50 | — |
| 9/32 | .2812 | 3 | 6-1/4 | 1 | 39.30 | 39.30 |
| 5/16 | .3125 | 3-1/8 | 6-3/8 | 1 | 45.00 | — |
| 11/32 | .3438 | 3-1/4 | 6-1/2 | 1 | 49.00 | — |
| 3/8 | .3750 | 3-1/2 | 6-3/4 | 1 | 54.20 | 54.20 |
| 25/64 | .3906 | 3-5/8 | 7 | 1 | 59.44 | — |
| 13/32 | .4062 | 3-5/8 | 7 | 1 | 59.44 | 59.44 |
| 7/16 | .4375 | 3-7/8 | 7-1/4 | 1 | 62.11 | 62.11 |
| 15/32 | .4688 | 4-1/8 | 7-1/2 | 1 | 65.10 | 65.10 |
| 31/64 | .4844 | 4-3/8 | 8-1/4 | 2 | 67.80 | 67.80 |
| 1/2 | .5000 | 4-3/8 | 8-1/4 | 2 | 53.30 | — |
| 33/64 | .5156 | 4-5/8 | 8-1/2 | 2 | — | 59.50 |
| 17/32 | .5312 | 4-5/8 | 8-1/2 | 2 | 56.00 | 56.00 |
| 35/64 | .5469 | 4-7/8 | 8-3/4 | 2 | — | 75.17 |
| 9/16 | .5625 | 4-7/8 | 8-3/4 | 2 | 60.25 | 60.25 |
| 37/64 | .5781 | 4-7/8 | 8-3/4 | 2 | 67.50 | — |
| 19/32 | .5938 | 4-7/8 | 8-3/4 | 2 | 67.50 | 66.25 |
| 5/8 | .6250 | 4-7/8 | 8-3/4 | 2 | 70.30 | 68.20 |
| 41/64 | .6406 | 5-1/8 | 9 | 2 | — | 88.60 |
| 21/32 | .6562 | 5-1/8 | 9 | 2 | 75.30 | 75.00 |
| 11/16 | .6875 | 5-3/8 | 9-1/4 | 2 | 82.00 | 76.60 |
| 45/64 | .7031 | 5-5/8 | 9-1/2 | 2 | — | 99.26 |
| 23/32 | .7188 | 5-5/8 | 9-1/2 | 2 | 87.15 | 86.70 |
| 47/64 | .7344 | 5-5/8 | 9-1/2 | 2 | — | 101.20 |
| 3/4 | .7500 | 5-7/8 | 9-3/4 | 2 | 93.12 | 88.30 |
| 49/64 | .7656 | 6 | 9-7/8 | 2 | — | 110.26 |
| 25/32 | .7812 | 6 | 9-7/8 | 2 | 96.60 | 96.60 |
| 51/64 | .7969 | 6-1/8 | 10-3/4 | 3 | — | 120.17 |
| 13/16 | .8125 | 6-1/8 | 10-3/4 | 3 | 113.75 | 112.90 |
| 27/32 | .8438 | 6-1/8 | 10-3/4 | 3 | 118.99 | 118.99 |
| 55/64 | .8594 | 6-1/8 | 10-3/4 | 3 | — | 129.87 |
| 7/8 | .8750 | 6-1/8 | 10-3/4 | 3 | 122.35 | 119.80 |
| 29/32 | .9062 | 6-1/8 | 10-3/4 | 3 | 129.10 | 129.10 |
| 59/64 | .9219 | 6-1/8 | 10-3/4 | 3 | — | 139.50 |
| 15/16 | .9375 | 6-1/8 | 10-3/4 | 3 | 129.10 | 129.10 |
| 61/64 | .9531 | 6-3/8 | 11 | 3 | — | 160.00 |
| 31/32 | .9688 | 6-3/8 | 11 | 3 | 149.40 | 149.40 |
| 63/64 | .9844 | 6-3/8 | 11 | 3 | — | 165.00 |
| 1 | 1.0000 | 6-3/8 | 11 | 3 | 153.78 | 149.40 |
| 1-1/64 | 1.0156 | 6-1/2 | 11-1/8 | 3 | 179.90 | 179.90 |
| 1-1/32 | 1.0312 | 6-1/2 | 11-1/8 | 3 | 163.50 | 163.50 |
| 1-3/64 | 1.0469 | 6-5/8 | 11-1/4 | 3 | — | 188.88 |
| 1-1/16 | 1.0625 | 6-5/8 | 11-1/4 | 3 | 175.88 | 175.88 |
| 1-5/64 | 1.0781 | 6-7/8 | 11-1/2 | 3 | — | 210.40 |
| 1-3/32 | 1.0938 | 6-7/8 | 12-1/2 | 4 | 196.00 | 196.00 |
| 1-1/8 | 1.1250 | 7-1/8 | 12-3/4 | 4 | 208.10 | 208.10 |
| 1-5/32 | 1.1562 | 7-1/4 | 12-7/8 | 4 | 213.98 | 213.98 |
| 1-3/16 | 1.1875 | 7-3/8 | 13 | 4 | 230.00 | 230.00 |
| 1-13/64 | 1.2031 | 7-1/2 | 13-1/8 | 4 | — | 265.00 |
| 1-7/32 | 1.2188 | 7-1/2 | 13-1/8 | 4 | 244.50 | 244.50 |
| 1-15/64 | 1.2344 | 7-7/8 | 13-1/2 | 4 | — | 275.00 |

| Size | Dec. Equiv. | Flute Length | Overall Length | Morse Taper No. | Price Each | |
|---------|-------------|--------------|----------------|-----------------|--------------|--------------|
| | | | | | List No. 521 | List No. 522 |
| 1-1/4 | 1.2500 | 7-7/8 | 13-1/2 | 4 | 260.00 | 260.00 |
| 1-17/64 | 1.2656 | 8-1/2 | 14-1/8 | 4 | — | 330.50 |
| 1-9/32 | 1.2812 | 8-1/2 | 14-1/8 | 4 | 315.89 | 308.19 |
| 1-5/16 | 1.3125 | 8-5/8 | 14-1/4 | 4 | 328.04 | 311.25 |
| 1-11/32 | 1.3438 | 8-3/4 | 14-3/8 | 4 | 349.12 | 332.00 |
| 1-3/8 | 1.3750 | 8-7/8 | 14-1/2 | 4 | 349.12 | 332.00 |
| 1-13/32 | 1.4062 | 9 | 14-5/8 | 4 | 383.00 | 355.80 |
| 1-7/16 | 1.4375 | 9-1/8 | 14-3/4 | 4 | 383.00 | 373.59 |
| 1-15/32 | 1.4688 | 9-1/4 | 14-7/8 | 4 | 413.40 | 391.50 |
| 1-1/2 | 1.5000 | 9-3/8 | 15 | 4 | 413.40 | 392.30 |
| 1-17/32 | 1.5312 | 9-3/8 | 16-3/8 | 5 | 458.13 | 453.00 |
| 1-35/64 | 1.5469 | 9-5/8 | 16-5/8 | 5 | — | 496.16 |
| 1-9/16 | 1.5625 | 9-5/8 | 16-5/8 | 5 | 483.92 | 483.92 |
| 1-37/64 | 1.5781 | 9-7/8 | 16-7/8 | 5 | — | 550.00 |
| 1-19/32 | 1.5938 | 9-7/8 | 16-7/8 | 5 | 523.90 | 523.90 |
| 1-39/64 | 1.6094 | 10 | 17 | 5 | 560.00 | 560.00 |
| 1-5/8 | 1.6250 | 10 | 17 | 5 | — | 507.75 |
| 1-21/32 | 1.6562 | 10-1/8 | 17-1/8 | 5 | 593.75 | 593.75 |
| 1-43/64 | 1.6719 | 10-1/8 | 17-1/8 | 5 | 615.97 | — |
| 1-11/16 | 1.6875 | 10-1/8 | 17-1/8 | 5 | 615.97 | 615.97 |
| 1-23/32 | 1.7188 | 10-1/8 | 17-1/8 | 5 | 615.97 | 615.97 |
| 1-47/64 | 1.7344 | 10-1/8 | 17-1/8 | 5 | 660.00 | — |
| 1-3/4 | 1.7500 | 10-1/8 | 17-1/8 | 5 | — | 654.90 |
| 1-25/32 | 1.7812 | 10-1/8 | 17-1/8 | 5 | — | 682.60 |
| 1-13/16 | 1.8125 | 10-1/8 | 17-1/8 | 5 | 702.00 | 702.00 |
| 1-27/32 | 1.8438 | 10-1/8 | 17-1/8 | 4 | — | 660.50 |
| 1-27/32 | 1.8438 | 10-1/8 | 17-1/8 | 5 | — | 699.00 |
| 1-7/8 | 1.8750 | 10-3/8 | 17-3/8 | 5 | 770.00 | — |
| 1-29/32 | 1.9062 | 10-3/8 | 17-3/8 | 5 | 798.98 | 798.98 |
| 1-15/16 | 1.9375 | 10-3/8 | 17-3/8 | 4 | — | 745.50 |
| 1-15/16 | 1.9375 | 10-3/8 | 17-3/8 | 5 | — | 745.44 |
| 1-31/32 | 1.9688 | 10-3/8 | 17-3/8 | 5 | 834.50 | 834.50 |
| 2 | 2.0000 | 10-3/8 | 17-3/8 | 5 | — | 791.20 |
| 2-1/32 | 2.0312 | 10-3/8 | 17-3/8 | 5 | — | 870.16 |
| 2-1/16 | 2.0625 | 10-1/4 | 17-3/8 | 5 | 880.20 | 880.20 |
| 2-1/8 | 2.1250 | 10-1/4 | 17-3/8 | 5 | — | 857.80 |
| 2-5/32 | 2.1562 | 10-1/4 | 17-3/8 | 5 | — | 950.00 |
| 2-3/16 | 2.1875 | 10-1/4 | 17-3/8 | 5 | — | 1075.20 |
| 2-1/4 | 2.2500 | 10-1/8 | 17-3/8 | 5 | 1065.50 | 1065.50 |
| 2-5/16 | 2.3125 | 10-1/8 | 17-3/8 | 5 | — | 1250.00 |
| 2-3/8 | 2.3750 | 10-1/8 | 17-3/8 | 5 | — | 1197.70 |
| 2-7/16 | 2.4375 | 11-1/4 | 18-3/4 | 5 | — | 1455.70 |
| 2-1/2 | 2.5000 | 11-1/4 | 18-3/4 | 5 | — | 1374.50 |
| 2-9/16 | 2.5625 | 11-7/8 | 19-1/2 | 5 | — | 1545.00 |
| 2-5/8 | 2.6250 | 11-7/8 | 19-1/2 | 5 | — | 1620.00 |
| 2-11/16 | 2.6875 | 12-3/4 | 20-3/8 | 5 | — | 1659.00 |
| 2-3/4 | 2.7500 | 12-3/4 | 20-3/8 | 5 | 1880.50 | 1880.50 |
| 2-13/16 | 2.8125 | 13-3/8 | 21-1/8 | 5 | — | 2020.00 |
| 2-7/8 | 2.8750 | 13-3/8 | 21-1/8 | 5 | — | 2039.00 |
| 2-15/16 | 2.9375 | 14 | 21-3/4 | 5 | — | 2183.00 |
| 3 | 3.0000 | 14 | 21-3/4 | 5 | — | 2295.00 |

CARBIDE TIPPED CORE DRILLS

TAPER SHANK

● LIST NO. CT522 — FOUR FLUTE

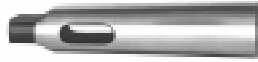


| Size | Dec. Equiv. | Length of Carbide | Flute Length | Overall Length | Morse Taper No. | Price Each |
|-------|-------------|-------------------|--------------|----------------|-----------------|------------|
| 1/2 | .5000 | 3/4 | 4-3/8 | 8-1/4 | 2 | 132.07 |
| 17/32 | .5312 | 3/4 | 4-3/8 | 8-1/4 | 2 | 132.92 |
| 9/16 | .5625 | 3/4 | 4-3/8 | 8-1/4 | 2 | 132.92 |
| 5/8 | .6250 | 3/4 | 4-3/8 | 8-1/4 | 2 | 139.20 |
| 21/32 | .6562 | 3/4 | 4-3/8 | 8-1/4 | 2 | 140.98 |
| 11/16 | .6875 | 7/8 | 4-3/8 | 8-1/4 | 2 | 142.31 |
| 3/4 | .7500 | 7/8 | 4-3/8 | 8-1/4 | 2 | 142.31 |
| 13/16 | .8125 | 7/8 | 4-7/8 | 9-1/2 | 3 | 148.96 |
| 27/32 | .8438 | 7/8 | 4-7/8 | 9-1/2 | 3 | 157.50 |
| 7/8 | .8750 | 7/8 | 4-7/8 | 9-1/2 | 3 | 157.50 |
| 15/16 | .9375 | 7/8 | 4-7/8 | 9-1/2 | 3 | 158.58 |
| 1 | 1.0000 | 7/8 | 4-7/8 | 9-1/2 | 3 | 162.89 |

| Size | Dec. Equiv. | Length of carbide | Flute Length | Overall Length | Morse Taper No. | Price Each |
|--------|-------------|-------------------|--------------|----------------|-----------------|------------|
| 1-1/32 | 1.0312 | 7/8 | 4-7/8 | 9-1/2 | 3 | 169.02 |
| 1-1/16 | 1.0625 | 7/8 | 4-7/8 | 9-1/2 | 3 | 171.23 |
| 1-3/32 | 1.0938 | 1 | 4-7/8 | 10-1/2 | 4 | 199.92 |
| 1-1/8 | 1.1250 | 1 | 4-7/8 | 10-1/2 | 4 | 210.79 |
| 1-5/32 | 1.1562 | 1 | 4-7/8 | 10-1/2 | 4 | 216.89 |
| 1-3/16 | 1.1875 | 1 | 4-7/8 | 10-1/2 | 4 | 223.92 |
| 1-1/4 | 1.2500 | 1 | 4-7/8 | 10-1/2 | 4 | 225.35 |
| 1-9/32 | 1.2812 | 1 | 4-7/8 | 10-1/2 | 4 | 242.12 |
| 1-5/16 | 1.3125 | 1 | 4-7/8 | 10-1/2 | 4 | 248.17 |
| 1-3/8 | 1.3750 | 1 | 4-7/8 | 10-1/2 | 4 | 259.67 |
| 1-7/16 | 1.4375 | 1 | 4-7/8 | 10-1/2 | 4 | 272.99 |
| 1-1/2 | 1.5000 | 1 | 4-7/8 | 10-1/2 | 4 | 286.97 |

MACHINE TOOL ACCESSORIES

● MORSE TAPER SLEEVES



For adapting Morse Taper shank tools to machine spindles having large Morse Taper holes. Available with hardened tang or hardened and ground throughout.

● MORSE TAPER EXTENSION SOCKETS

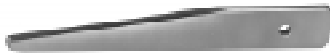


Used to increase or decrease the Morse Taper spindle capacity or to increase Morse Taper spindle projection.

| SLEEVES AND SOCKETS | | | | | | | | | | |
|---------------------|-----------------|----------|---------------------|----------------|-----------|---------------|------------------------------|----------------|----------|------------|
| Size | Morse Taper No. | | Morse Taper Sleeves | | | | Morse Taper Extension Socket | | | |
| | Internal | External | Overall Length | Hard Tang Only | | Hard & Ground | | Overall Length | Tool No. | Price Each |
| | | | | Tool No. | Price Ea. | Tool No. | Price Ea. | | | |
| 1 to 1 | 1 | 1 | — | — | — | — | — | 6-1/4 | ES11 | 17.33 |
| 1 to 2 | 1 | 2 | 3-9/16 | TS12 | 9.00 | TSH12 | 14.65 | 6-1/4 | ES12 | 17.33 |
| 1 to 3 | 1 | 3 | 3-15/16 | TS13 | 14.11 | TSH13 | 19.24 | 6-7/8 | ES13 | 21.11 |
| 1 to 4 | 1 | 4 | 4-7/8 | TS14 | 21.83 | TSH14 | 31.00 | 7-1/2 | ES14 | 25.27 |
| 1 to 5 | 1 | 5 | 6-1/8 | TS15 | 27.50 | TSH15 | 47.25 | 9-1/16 | ES15 | 36.75 |
| 2 to 1 | 2 | 1 | — | — | — | — | — | 6-1/4 | ES21 | 20.18 |
| 2 to 2 | 2 | 2 | — | — | — | — | — | 6-7/8 | ES22 | 20.22 |
| 2 to 3 | 2 | 3 | 4-7/16 | TS23 | 10.19 | TSH23 | 19.59 | 7-5/8 | ES23 | 20.22 |
| 2 to 4 | 2 | 4 | 4-7/8 | TS24 | 18.89 | TSH24 | 33.36 | 8-1/2 | ES24 | 29.02 |
| 2 to 5 | 2 | 5 | 6-1/8 | TS25 | 38.11 | TSH25 | 47.25 | 9-3/4 | ES25 | 36.75 |
| 3 to 1 | 3 | 1 | — | — | — | — | — | 7-1/4 | ES31 | 25.12 |
| 3 to 2 | 3 | 2 | — | — | — | — | — | 7-3/4 | ES32 | 25.13 |
| 3 to 3 | 3 | 3 | — | — | — | — | — | 8-1/2 | ES33 | 25.13 |
| 3 to 4 | 3 | 4 | 5-3/8 | TS34 | 15.90 | TSH34 | 33.38 | 9-1/2 | ES34 | 25.13 |
| 3 to 5 | 3 | 5 | 6-1/8 | TS35 | 27.50 | TSH35 | 47.22 | 10-1/2 | ES35 | 39.30 |
| 4 to 2 | 4 | 2 | — | — | — | — | — | 8-1/2 | ES42 | 38.49 |
| 4 to 3 | 4 | 3 | — | — | — | — | — | 9-1/2 | ES43 | 38.49 |
| 4 to 4 | 4 | 4 | — | — | — | — | — | 10-1/2 | ES44 | 38.49 |
| 4 to 5 | 4 | 5 | 6-5/8 | TS45 | 36.25 | TSH45 | 47.22 | 11-7/8 | ES45 | 48.05 |
| 4 to 6 | 4 | 6 | 8-5/8 | TS46 | 69.09 | TSH46 | 135.10 | 14 | ES46 | 109.59 |
| 5 to 3 | 5 | 3 | — | — | — | — | — | 10-1/2 | ES53 | 85.85 |
| 5 to 4 | 5 | 4 | — | — | — | — | — | 11-3/8 | ES54 | 85.85 |
| 5 to 5 | 5 | 5 | — | — | — | — | — | 13-3/4 | ES55 | 89.92 |
| 5 to 6 | 5 | 6 | 8-5/8 | TS56 | 74.90 | TSH56 | 146.55 | 15-3/8 | ES56 | 109.59 |

● DRILL DRIFTS OR CENTER KEYS

Drop Forged and Hardened



For removing taper shank tools from sleeves or spindles.

● SOLID SOCKETS WITH MORSE TAPER HOLES

Hardened and Ground Throughout



For adapting tools with Morse Taper shanks to machines with straight holes.

| DRILL DRIFTS | | | |
|--------------|---------------------------|----------|------------|
| Size | For Use With Taper Number | Tool No. | Price Each |
| 1 | 1 | DD1 | 4.56 |
| 2 | 2 | DD2 | 5.51 |
| 3 | 3 | DD3 | 6.09 |
| 4 | 4, 5, 6 | DD4 | 9.42 |

DRILL DRIFT SET
SET NO. DD14

Contains 1 piece of each: 1 thru 4
SET PRICE — \$24.95

| SOLID SOCKETS | | | | | | | | | |
|---------------|------------------------|--------------|----------|------------|------|------------------------|--------------|----------|------------|
| Size | Inside Morse Taper No. | Outside Dia. | Tool No. | Price Each | Size | Inside Morse Taper No. | Outside Dia. | Tool No. | Price Each |
| 1 | 1 | 1 | SS11 | 20.92 | 10 | 3 | 1-1/2 | SS103 | 34.58 |
| 2 | 1 | 1-1/4 | SS21 | 25.65 | 11 | 3 | 1-3/4 | SS113 | 37.80 |
| 3 | 1 | 1-1/2 | SS31 | 23.98 | 12 | 3 | 2 | SS123 | 41.20 |
| 4 | 2 | 1 | SS42 | 23.98 | 13 | 4 | 1-1/2 | SS134 | 41.20 |
| 5 | 2 | 1-1/4 | SS52 | 26.29 | 14 | 4 | 1-3/4 | SS144 | 44.87 |
| 6 | 2 | 1-1/2 | SS62 | 27.92 | 15 | 4 | 2 | SS154 | 47.74 |
| 7 | 2 | 1-3/4 | SS72 | 30.52 | 16 | 5 | 2-1/4 | SS165 | 83.43 |
| 8 | 2 | 2 | SS82 | 32.05 | 17 | 5 | 2-1/2 | SS175 | 83.43 |
| 9 | 3 | 1-1/4 | SS93 | 32.05 | 18 | 6 | 3-1/4 | SS185 | 133.28 |

◆ MILLING MACHINE ADAPTERS



| R-8 ADAPTERS FOR NATIONAL STANDARD TAPERS | | | |
|---|---------------|----------|------------|
| Inside Taper | Outside Taper | Tool No. | Price Each |
| R-8 | 40 | R8N40 | 107.00 |
| R-8 | 50 | R8N50 | 128.00 |

| R-8 ADAPTERS FOR MORSE TAPERS | | |
|-------------------------------|----------|------------|
| Inside Taper | Tool No. | Price Each |
| #2 Morse | R8M2 | 49.50 |
| #3 Morse | R8M3 | 56.50 |



CARBIDE TIPPED MASONRY DRILLS

STRAIGHT SHANK



For drilling brick, stone, slate, marble, cement, concrete, carbon, asphalt, plaster and wallboard.
These drills may be used in portable electric drills, drill presses, or other fixed spindle machine tools.

- ▶ LIST NO. CT890 — REGULAR HELIX TYPE
- ▶ LIST NO. CT890F — FAST HELIX TYPE

4" OVERALL

| Size | Shank Size | Price Each | |
|--------|------------|----------------|-----------------|
| | | List No. CT890 | List No. CT890F |
| *1/8 | 1/8 | 4.99 | 4.99 |
| *5/32 | 5/32 | 5.25 | — |
| *11/64 | 11/64 | 5.25 | — |
| 3/16 | 3/16 | 5.35 | 5.35 |
| 7/32 | 7/32 | 5.50 | — |
| 1/4 | 1/4 | 5.60 | 5.60 |
| 9/32 | 1/4 | 5.75 | — |
| 5/16 | 1/4 | 5.85 | 5.85 |
| 3/8 | 1/4 | 6.30 | 6.30 |
| 7/16 | 1/4 | 7.20 | 7.20 |
| 1/2 | 1/4 | 7.30 | — |

* 3" Overall Length

- ▶ LIST NO. CT891 — REGULAR HELIX TYPE
- ▶ LIST NO. CT891F — FAST HELIX TYPE

6" OVERALL

| Size | Shank Size | Price Each | |
|------|------------|----------------|-----------------|
| | | List No. CT891 | List No. CT891F |
| 1/8 | 1/8 | 5.25 | — |
| 3/16 | 3/16 | 5.40 | 5.40 |
| 1/4 | 1/4 | 5.60 | 5.60 |
| 9/32 | 1/4 | 6.25 | — |
| 5/16 | 1/4 | 6.50 | 6.50 |
| 3/8 | 1/4 | 6.70 | 6.70 |
| 7/16 | 1/4 | 7.15 | 7.15 |
| 7/16 | 3/8 | 7.15 | 7.15 |
| 1/2 | 1/4 | 7.75 | 7.75 |
| 1/2 | 3/8 | 7.75 | 7.75 |
| 9/16 | 3/8 | 10.75 | 10.75 |

| Size | Shank Size | Price Each | |
|-------|------------|----------------|-----------------|
| | | List No. CT891 | List No. CT891F |
| 9/16 | 1/2 | 10.75 | 10.75 |
| 5/8 | 1/2 | 12.50 | 12.50 |
| 11/16 | 1/2 | 13.65 | 13.65 |
| 3/4 | 1/2 | 14.75 | 14.75 |
| 7/8 | 1/2 | 18.75 | 18.75 |
| 1 | 1/2 | 23.00 | 23.00 |
| 1-1/8 | 1/2 | 33.00 | — |
| 1-1/4 | 1/2 | 43.00 | — |
| 1-3/8 | 1/2 | 58.00 | — |
| 1-1/2 | 1/2 | 59.50 | — |

- ▶ LIST NO. CT892 — REGULAR HELIX TYPE
- ▶ LIST NO. CT892F — FAST HELIX TYPE

12" OVERALL

| Size | Shank Size | Price Each | |
|-------|------------|----------------|-----------------|
| | | List No. CT892 | List No. CT892F |
| 1/8 | 1/8 | 12.40 | — |
| 3/16 | 3/16 | 12.75 | — |
| 1/4 | 1/4 | 12.95 | 12.95 |
| 5/16 | 1/4 | 13.75 | 13.75 |
| 3/8 | 1/4 | 15.50 | 15.50 |
| 7/16 | 3/8 | 18.50 | 18.50 |
| 1/2 | 1/4 | 18.90 | 18.90 |
| 1/2 | 3/8 | 18.90 | 18.90 |
| 9/16 | 1/2 | 21.50 | — |
| 5/8 | 1/2 | 23.75 | — |
| 11/16 | 1/2 | 27.90 | — |
| 3/4 | 1/2 | 28.50 | — |
| 7/8 | 1/2 | 33.90 | — |
| 1 | 1/2 | 39.00 | — |
| 1-1/8 | 1/2 | 49.00 | — |
| 1-3/8 | 1/2 | 78.00 | — |

SETS

MASONRY DRILL SET SET NO. CT890S

4 Piece Set
Contains 1 piece each of:
1/4, 5/16, 3/8, 1/2, by 4" OAL
Regular Spiral
Supplied in Polytube
SET PRICE — \$25.00

HS STEEL 1/4 SHANK DRILL AND MASONRY DRILL SET

SET NO. 304B
10 Piece Set
Contains 1 piece each of HS.
1/4 Shank Drill:
1/4, 5/16, 3/8, 7/16, 1/2
and 1/4 Shank Carbide Tipped
Masonry Drills:
1/4, 5/16, 3/8, 7/16, 1/2
SET PRICE — \$85.00

- ▶ LIST NO. CT893
REGULAR HELIX TYPE

18" OVERALL

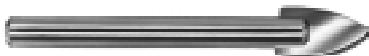
| Size | Shank Size | Price Each |
|-------|------------|------------|
| 1/4 | 1/4 | 19.95 |
| 3/16 | 3/16 | 21.00 |
| 5/16 | 1/4 | 22.50 |
| 3/8 | 5/16 | 24.00 |
| 7/16 | 3/8 | 28.80 |
| 1/2 | 3/8 | 29.50 |
| 9/16 | 1/2 | 34.00 |
| 5/8 | 1/2 | 36.00 |
| 5/8 | 3/8 | 36.00 |
| 11/16 | 1/2 | 42.00 |
| 3/4 | 1/2 | 43.00 |
| 7/8 | 1/2 | 52.00 |
| 1 | 1/2 | 59.00 |
| 1-1/8 | 1/2 | 84.00 |
| 1-1/4 | 1/2 | 89.00 |
| 1-3/8 | 1/2 | 125.00 |
| 1-1/2 | 1/2 | 115.00 |

CARBIDE TIPPED

GLASS AND TILE DRILLS



- ▶ LIST NO. CT898



For drilling glass, tiles, ceramics and other hard, fragile materials without chipping or cracking the material. Liquid coolant recommended.

| Size | Overall Length | Price Each |
|------|----------------|------------|
| 1/8 | 2-1/2 | 12.00 |
| 5/32 | 2-1/2 | 12.75 |
| 3/16 | 2-1/2 | 13.75 |
| 1/4 | 2-1/2 | 15.00 |
| 5/16 | 2-1/2 | 16.85 |
| 3/8 | 3 | 24.50 |
| 1/2 | 3 | 28.50 |

CARBIDE TIPPED

STANDARD "A" TAPER SHANK DRILLS



- LIST NO. CT884



Use in rotary hammer drills with "A" taper chucks or adapters.

| Size | Price Each | | | |
|------|------------|--------|--------|---------|
| | 4-1/2" OAL | 6" OAL | 9" OAL | 12" OAL |
| 3/16 | 8.67* | 9.00 | — | — |
| 1/4 | 9.80* | 10.20 | — | 15.90 |
| 5/16 | 10.25 | 11.25 | — | — |
| 3/8 | 10.75 | 12.50 | 13.75 | 17.80 |
| 7/16 | 12.00 | 14.20 | — | — |

| Size | Price Each | | |
|------|------------|--------|---------|
| | 6" OAL | 9" OAL | 12" OAL |
| 1/2 | 14.50 | 16.80 | 22.00 |
| 9/16 | — | 17.85 | — |
| 5/8 | 17.25 | 22.50 | 29.00 |
| 3/4 | 22.00 | 27.50 | 34.50 |
| 7/8 | — | 38.85 | — |

* 3/16 — 3-5/8 OAL
* 1/4 — 4" OAL



CARBIDE TIPPED

HAMMER DRILLS

SDS - PLUS MASONRY DRILLS

4 SLOT SHANK
● LIST NO. CT886



The versatile Slot Drive System fits all rotary Hammer Drills that specify an SDS - PLUS shank. Positive drive slots will deliver maximum drilling torque and hammering energy for faster drilling.

SDS - MAX MASONRY DRILLS

5 SLOT SHANK
● LIST NO. CT886MX



Extra heavy duty Slot Drive System to maximize performance

| Size | Aprox. Usable Length | Aprox. Overall Length | Price Each |
|------|----------------------|-----------------------|------------|
| 5/32 | 4 | 6-5/8 | 8.20 |
| 3/16 | 2 | 4-5/8 | 8.43 |
| 3/16 | 4 | 6-5/8 | 8.64 |
| 3/16 | 6 | 8-5/8 | 11.56 |
| 7/32 | 4 | 6-5/8 | 9.72 |
| 1/4 | 2 | 4-5/8 | 8.80 |
| 1/4 | 4 | 6-5/8 | 9.58 |
| 1/4 | 6 | 8-5/8 | 12.00 |
| 1/4 | 12 | 14-5/8 | 22.80 |
| 5/16 | 4 | 6-5/8 | 12.50 |
| 5/16 | 10 | 12-5/8 | 22.50 |
| 3/8 | 4 | 6-5/8 | 11.70 |
| 3/8 | 10 | 12-5/8 | 22.50 |
| 7/16 | 4 | 6-5/8 | 16.50 |
| 7/16 | 10 | 12-5/8 | 22.80 |
| 7/16 | 16 | 18-5/8 | 33.00 |
| 1/2 | 4 | 6-5/8 | 14.40 |
| 1/2 | 10 | 12-5/8 | 27.50 |

| Size | Aprox. Usable Length | Aprox. Overall Length | Price Each |
|-------|----------------------|-----------------------|------------|
| 1/2 | 14 | 18-5/8 | 32.00 |
| 9/16 | 4 | 6-3/4 | 21.50 |
| 9/16 | 10 | 12-3/4 | 29.00 |
| 9/16 | 16 | 18-3/4 | 39.00 |
| 5/8 | 4 | 6-3/4 | 24.00 |
| 5/8 | 10 | 12-3/4 | 36.00 |
| 5/8 | 15 | 18-3/4 | 49.00 |
| 11/16 | 4 | 6-3/4 | 34.00 |
| 3/4 | 4 | 6-3/4 | 32.00 |
| 3/4 | 6 | 9-3/4 | 40.80 |
| 3/4 | 10 | 12-3/4 | 46.80 |
| 3/4 | 14 | 18-3/4 | 58.00 |
| 7/8 | 4 | 6-3/4 | 34.00 |
| 7/8 | 10 | 12-3/4 | 59.00 |
| 7/8 | 14 | 18-3/4 | 69.00 |
| 1 | 10 | 13-3/4 | 62.40 |
| 1 | 14 | 18-3/4 | 78.00 |

| Size | Aprox. Usable Length | Aprox. Overall Length | Price Each |
|-------|----------------------|-----------------------|------------|
| 3/8 | 7 | 13 | 64.95 |
| 1/2 | 7 | 13 | 66.00 |
| 1/2 | 16 | 21 | 81.90 |
| 9/16 | 7 | 13 | 74.80 |
| 9/16 | 16 | 21 | 99.50 |
| 5/8 | 7 | 13 | 79.50 |
| 5/8 | 16 | 21 | 101.50 |
| 5/8 | 31 | 36 | 169.00 |
| 3/4 | 7 | 13 | 79.75 |
| 3/4 | 16 | 21 | 103.00 |
| 3/4 | 31 | 36 | 189.50 |
| 7/8 | 8 | 13 | 92.50 |
| 7/8 | 16 | 21 | 127.50 |
| 1 | 8 | 13 | 99.00 |
| 1 | 16 | 21 | 121.00 |
| 1 | 31 | 36 | 217.50 |
| 1-1/8 | 16 | 21 | 158.00 |
| 1-1/4 | 16 | 21 | 169.00 |
| 1-1/2 | 16 | 21 | 242.00 |

SPLINE BITS

● LIST NO. CT887



Heavy duty spline shanks to fit popular Hammer Drills.

| Size | Price Each | | |
|-------|------------|---------|---------|
| | 12" OAL | 18" OAL | 24" OAL |
| 3/8 | 39.90 | 47.50 | — |
| 1/2 | 42.50 | 48.75 | 57.75 |
| 9/16 | 44.75 | 51.25 | — |
| 5/8 | 47.00 | 53.50 | 61.20 |
| 11/16 | 50.00 | — | — |
| 3/4 | 52.00 | 56.80 | 62.75 |

| Size | Price Each | | |
|-------|------------|---------|---------|
| | 12" OAL | 18" OAL | 24" OAL |
| 7/8 | 55.00 | 61.25 | 68.00 |
| 1 | 62.50 | 70.00 | 78.75 |
| 1-1/8 | — | 79.00 | 92.00 |
| 1-1/4 | — | 93.75 | 101.85 |
| 1-1/2 | — | 122.50 | 136.50 |

CARBIDE TIPPED

IMPACT HAMMER DRILLS

● LIST NO. CT880 — PERCUSSION TYPE DRILLS



For use in Hammer Drills equipped with 3-Jawed Jacobs Type Chuck.

| Size | Shank Diameter | Overall Length | Price Each |
|-------|----------------|----------------|------------|
| 1/8 | 1/8 | 3 | 3.77 |
| 1/8 | 1/8 | 6 | 5.30 |
| 5/32 | 9/64 | 3 | 5.30 |
| 11/64 | 9/64 | 3 | 5.30 |
| 3/16 | 3/16 | 3 | 3.77 |
| 3/16 | 3/16 | 6 | 4.20 |
| 3/16 | 3/16 | 8 | 5.95 |
| 7/32 | 7/32 | 4 | 4.20 |
| 1/4 | 1/4 | 4 | 3.92 |
| 1/4 | 1/4 | 6 | 4.95 |
| 1/4 | 1/4 | 13 | 12.50 |
| 1/4 | 1/4 | 18 | 14.50 |
| 9/32 | 1/4 | 4 | 4.95 |
| 5/16 | 1/4 | 4 | 4.62 |

| Size | Shank Diameter | Overall Length | Price Each |
|------|----------------|----------------|------------|
| 5/16 | 1/4 | 6 | 5.50 |
| 5/16 | 1/4 | 13 | 11.50 |
| 3/8 | 1/4 | 4 | 5.77 |
| 3/8 | 1/4 | 6 | 6.40 |
| 3/8 | 3/8 | 13 | 12.00 |
| 3/8 | 3/8 | 20 | 15.75 |
| 3/8 | 3/8 | 24 | 22.00 |
| 7/16 | 1/4 | 6 | 7.50 |
| 1/2 | 3/8 | 6 | 7.80 |
| 1/2 | 3/8 | 13 | 14.50 |
| 9/16 | 1/2 | 6 | 9.40 |
| 9/16 | 3/8 | 13 | 16.80 |
| 5/8 | 1/2 | 6 | 10.50 |
| 5/8 | 1/2 | 13 | 17.85 |

| Size | Shank Diameter | Overall Length | Price Each |
|-------|----------------|----------------|------------|
| 5/8 | 1/2 | 18 | 22.00 |
| 11/16 | 1/2 | 6 | 13.00 |
| 3/4 | 1/2 | 6 | 14.00 |
| 3/4 | 1/2 | 13 | 21.00 |
| 7/8 | 1/2 | 6 | 17.35 |
| 7/8 | 1/2 | 13 | 23.10 |
| 7/8 | 1/2 | 18 | 30.45 |
| 1 | 1/2 | 6 | 21.00 |
| 1 | 1/2 | 13 | 28.50 |
| 1 | 1/2 | 18 | 38.50 |
| 1-1/8 | 1/2 | 13 | 31.50 |
| 1-1/8 | 1/2 | 18 | 38.85 |
| 1-1/4 | 1/2 | 6 | 32.50 |
| 1-1/2 | 1/2 | 6 | 42.00 |

BRAD AND SPUR POINT DRILLS

Please order in package quantity.



● LIST NO. 311B



Brad and Spur Point Drills are used primarily in wood. The Brad Point tip ensures an easy and accurate start while the spurs cut a clean, smooth hole, especially at breakthrough.

| Size | Dec. Equiv. | Shank Diameter | Flute Length | Overall Length | Pkg. Qty. | Price Each |
|-------|-------------|----------------|--------------|----------------|-----------|------------|
| 1/8 | .1250 | 1/8 | 1-5/8 | 2-3/4 | 12 | 4.30 |
| 3/16 | .1875 | 3/16 | 2-5/16 | 3-1/2 | 12 | 4.95 |
| 1/4 | .2500 | 1/4 | 2-3/4 | 4 | 12 | 5.90 |
| 5/16 | .3125 | 1/4 | 2-1/2 | 3-13/16 | 6 | 9.40 |
| 5/16 | .3125 | 5/16 | 3-3/16 | 4-1/2 | 6 | 6.75 |
| 3/8 | .3750 | 1/4 | 2-7/8 | 4-1/4 | 6 | 11.75 |
| 7/16 | .4375 | 1/4 | 3-3/8 | 4-11/16 | 6 | 13.50 |
| 1/2 | .5000 | 1/4 | 3-5/8 | 5-1/16 | 6 | 16.50 |
| 9/16 | .5625 | 1/2 | 3 | 6 | 1 | 27.50 |
| 5/8 | .6250 | 1/2 | 3 | 6 | 1 | 29.90 |
| 11/16 | .6875 | 1/2 | 3 | 6 | 1 | 35.50 |
| 3/4 | .7500 | 1/2 | 3 | 6 | 1 | 37.80 |

CARBIDE TIPPED

SILVER AND DEMING (BOWLING BALL) DRILLS

■ LIST NO. CT810 — SILVER AND DEMING BOWLING BALL — 1/2" STRAIGHT SHANK
3-7/8" Flute, 6-1/4" Overall

TAPER SHANK (BOWLING BALL) DRILLS

■ LIST NO. CT811 — TAPER SHANK BOWLING BALL — 2 MORSE TAPER SHANK
4-1/8" Flute, 7-1/2" Overall



These drills can also be used effectively in many drilling applications using bakelite composites and other similar non-metallic material.

| Size | Dec. Equiv. | Price Each | |
|-------|-------------|---------------------|---------------------|
| | | S.S. List No. CT810 | T.S. List No. CT811 |
| 7/16 | .4375 | 17.50 | 32.00 |
| 1/2 | .5000 | 17.50 | 32.00 |
| 9/16 | .5625 | 19.85 | 34.80 |
| 5/8 | .6250 | 22.50 | 36.00 |
| 21/32 | .6562 | 23.00 | 38.25 |
| 11/16 | .6875 | 24.00 | 38.85 |
| 23/32 | .7188 | 25.00 | 40.80 |
| 3/4 | .7500 | 25.50 | 44.20 |
| 25/32 | .7812 | 26.00 | 45.00 |
| 13/16 | .8125 | 26.50 | 46.00 |
| 27/32 | .8438 | 28.00 | 47.00 |
| 7/8 | .8750 | 29.75 | 48.00 |

Other sizes available. Please inquire.

| Size | Dec. Equiv. | Price Each | |
|--------|-------------|---------------------|---------------------|
| | | S.S. List No. CT810 | T.S. List No. CT811 |
| 29/32 | .9062 | 31.50 | 50.75 |
| 15/16 | .9375 | 33.00 | 51.50 |
| 61/64 | .9531 | 34.00 | 55.00 |
| 31/32 | .9688 | 35.00 | 56.00 |
| 63/64 | .9844 | 36.50 | 57.50 |
| 1 | 1.0000 | 37.75 | 59.00 |
| 1-1/64 | 1.0156 | 39.50 | 69.00 |
| 1-1/32 | 1.0312 | 41.00 | 70.00 |
| 1-1/16 | 1.0625 | 42.00 | 71.00 |
| 1-3/32 | 1.0938 | 44.00 | 72.00 |
| 1-1/8 | 1.1250 | 45.50 | 73.00 |
| 1-1/4 | 1.2500 | 48.00 | 85.00 |

SET NO. CT810S
17 PIECE SET
Contains 1 Piece Each:
5/8" to 1-1/8" by 32nds
Supplied in wood block.
STRAIGHT SHANK
SET PRICE — \$540.00



SET NO. CT811S
TAPER SHANK
SET PRICE — \$895.00

SET NO. CT810L
23 PIECE SET
Contains 1 Piece Each:
7/16" to 1-1/8" by 32nds
also 61/64, 63/64 and 1-1/64
Supplied in wood block.
STRAIGHT SHANK
SET PRICE — \$704.85



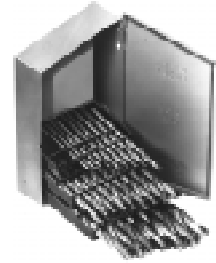
SET NO. CT811L
TAPER SHANK
SET PRICE — \$1175.00



CARBIDE TIPPED DRILLS

JOBBER LENGTH — 118° POINT

► LIST NO. CT830



SET NO. CT830SF

25 Piece Set
1/8 - 1/2 x 64ths
in Metal Index

SET PRICE — \$878.00

These Carbide Tipped Drills are designed for drilling abrasive and nonferrous materials such as castings, hard rubber and copper alloys. They are **NOT** recommended for drilling steel or other ferrous materials.

FRACTIONAL SIZES

| Size | Dec. Equiv. | Flute Length | Overall Length | Price Each |
|-------|-------------|--------------|----------------|------------|
| 1/8 | .1250 | 1-5/8 | 2-3/4 | 19.85 |
| 9/64 | .1406 | 1-3/4 | 2-7/8 | 20.99 |
| 5/32 | .1562 | 2 | 3-1/8 | 20.99 |
| 11/64 | .1719 | 2-1/8 | 3-1/4 | 22.40 |
| 3/16 | .1875 | 2-5/16 | 3-1/2 | 22.40 |
| 13/64 | .2031 | 2-7/16 | 3-5/8 | 24.45 |
| 7/32 | .2188 | 2-1/2 | 3-3/4 | 24.45 |
| 15/64 | .2344 | 2-5/8 | 3-7/8 | 26.92 |
| 1/4 | .2500 | 2-3/4 | 4 | 27.45 |
| 17/64 | .2656 | 2-7/8 | 4-1/8 | 31.70 |
| 9/32 | .2812 | 2-15/16 | 4-1/4 | 31.11 |
| 19/64 | .2969 | 3-1/16 | 4-3/8 | 34.25 |
| 5/16 | .3125 | 3-3/16 | 4-1/2 | 33.63 |

| Size | Dec. Equiv. | Flute Length | Overall Length | Price Each |
|-------|-------------|--------------|----------------|------------|
| 21/64 | .3281 | 3-5/16 | 4-5/8 | 36.41 |
| 11/32 | .3438 | 3-7/16 | 4-3/4 | 35.72 |
| 23/64 | .3594 | 3-1/2 | 4-7/8 | 38.70 |
| 3/8 | .3750 | 3-5/8 | 5 | 37.97 |
| 25/64 | .3906 | 3-3/4 | 5-1/8 | 42.12 |
| 13/32 | .4062 | 3-7/8 | 5-1/4 | 41.38 |
| 27/64 | .4219 | 3-15/16 | 5-3/8 | 45.67 |
| 7/16 | .4375 | 4-1/16 | 5-1/2 | 44.85 |
| 29/64 | .4531 | 4-3/16 | 5-5/8 | 51.35 |
| 15/32 | .4688 | 4-5/16 | 5-3/4 | 50.43 |
| 31/64 | .4844 | 4-3/8 | 5-7/8 | 57.46 |
| 1/2 | .5000 | 4-1/2 | 6 | 56.38 |
| 33/64 | .5156 | 4-13/16 | 6-5/8 | 86.54 |

| Size | Dec. Equiv. | Flute Length | Overall Length | Price Each |
|-------|-------------|--------------|----------------|------------|
| 17/32 | .5312 | 4-13/16 | 6-5/8 | 86.54 |
| 35/64 | .5469 | 4-13/16 | 6-5/8 | 87.48 |
| 9/16 | .5625 | 4-13/16 | 6-5/8 | 87.48 |
| 37/64 | .5781 | 4-13/16 | 6-5/8 | 96.53 |
| 19/32 | .5938 | 5-3/16 | 7-1/8 | 93.69 |
| 39/64 | .6094 | 5-3/16 | 7-1/8 | 110.84 |
| 5/8 | .6250 | 5-3/16 | 7-1/8 | 106.11 |
| 41/64 | .6406 | 5-3/16 | 7-1/8 | 122.45 |
| 21/32 | .6562 | 5-3/16 | 7-1/8 | 107.87 |
| 43/64 | .6719 | 5-5/8 | 7-5/8 | 140.54 |
| 11/16 | .6875 | 5-5/8 | 7-5/8 | 110.03 |

LETTER SIZES

| Size | Dec. Equiv. | Flute Length | Overall Length | Price Each |
|------|-------------|--------------|----------------|------------|
| A | .2340 | 2-5/8 | 3-7/8 | 28.75 |
| B | .2380 | 2-3/4 | 4 | 28.75 |
| C | .2420 | 2-3/4 | 4 | 28.75 |
| D | .2460 | 2-3/4 | 4 | 28.75 |
| E | .2500 | 2-3/4 | 4 | 27.45 |
| F | .2570 | 2-7/8 | 4-1/8 | 32.50 |
| G | .2610 | 2-7/8 | 4-1/8 | 32.98 |
| H | .2660 | 2-7/8 | 4-1/8 | 32.98 |
| I | .2720 | 2-7/8 | 4-1/8 | 32.98 |

| Size | Dec. Equiv. | Flute Length | Overall Length | Price Each |
|------|-------------|--------------|----------------|------------|
| J | .2770 | 2-7/8 | 4-1/8 | 33.83 |
| K | .2810 | 2-15/16 | 4-1/4 | 33.83 |
| L | .2900 | 2-15/16 | 4-1/4 | 33.83 |
| M | .2950 | 3-1/16 | 4-3/8 | 35.74 |
| N | .3020 | 3-1/16 | 4-3/8 | 35.74 |
| O | .3160 | 3-3/16 | 4-1/2 | 35.74 |
| P | .3230 | 3-5/16 | 4-5/8 | 38.07 |
| Q | .3320 | 3-7/16 | 4-3/4 | 38.07 |
| R | .3390 | 3-7/16 | 4-3/4 | 38.07 |

| Size | Dec. Equiv. | Flute Length | Overall Length | Price Each |
|------|-------------|--------------|----------------|------------|
| S | .3480 | 3-1/2 | 4-7/8 | 40.41 |
| T | .3580 | 3-1/2 | 4-7/8 | 40.41 |
| U | .3680 | 3-5/8 | 5 | 40.41 |
| V | .3770 | 3-5/8 | 5 | 41.25 |
| W | .3860 | 3-3/4 | 5-1/8 | 44.97 |
| X | .3970 | 3-3/4 | 5-1/8 | 44.97 |
| Y | .4040 | 3-7/8 | 5-1/4 | 44.97 |
| Z | .4130 | 3-7/8 | 5-1/4 | 49.80 |

WIRE GAUGE SIZES

| Size | Dec. Equiv. | Flute Length | Overall Length | Price Each |
|------|-------------|--------------|----------------|------------|
| 1 | .2280 | 2-5/8 | 3-7/8 | 25.00 |
| 2 | .2210 | 2-5/8 | 3-7/8 | 25.00 |
| 3 | .2130 | 2-1/2 | 3-3/4 | 23.71 |
| 4 | .2090 | 2-1/2 | 3-3/4 | 23.71 |
| 5 | .2055 | 2-1/2 | 3-3/4 | 23.71 |
| 6 | .2040 | 2-1/2 | 3-3/4 | 23.71 |
| 7 | .2010 | 2-7/16 | 3-5/8 | 23.71 |
| 8 | .1990 | 2-7/16 | 3-5/8 | 23.71 |
| 9 | .1960 | 2-7/16 | 3-5/8 | 23.71 |
| 10 | .1935 | 2-7/16 | 3-5/8 | 23.71 |
| 11 | .1910 | 2-5/16 | 3-1/2 | 23.71 |

| Size | Dec. Equiv. | Flute Length | Overall Length | Price Each |
|------|-------------|--------------|----------------|------------|
| 12 | .1890 | 2-5/16 | 3-1/2 | 23.71 |
| 13 | .1850 | 2-5/16 | 3-1/2 | 22.40 |
| 14 | .1820 | 2-3/16 | 3-3/8 | 22.40 |
| 15 | .1800 | 2-3/16 | 3-3/8 | 22.40 |
| 16 | .1770 | 2-3/16 | 3-3/8 | 22.40 |
| 17 | .1730 | 2-3/16 | 3-3/8 | 22.40 |
| 18 | .1695 | 2-1/8 | 3-1/4 | 22.40 |
| 19 | .1660 | 2-1/8 | 3-1/4 | 22.40 |
| 20 | .1610 | 2-1/8 | 3-1/4 | 22.40 |
| 21 | .1590 | 2-1/8 | 3-1/4 | 22.40 |
| 22 | .1570 | 2 | 3-1/8 | 22.40 |

| Size | Dec. Equiv. | Flute Length | Overall Length | Price Each |
|------|-------------|--------------|----------------|------------|
| 23 | .1540 | 2 | 3-1/8 | 21.19 |
| 24 | .1520 | 2 | 3-1/8 | 21.19 |
| 25 | .1495 | 1-7/8 | 3 | 21.19 |
| 26 | .1470 | 1-7/8 | 3 | 21.19 |
| 27 | .1440 | 1-7/8 | 3 | 21.19 |
| 28 | .1405 | 1-3/4 | 2-7/8 | 21.19 |
| 29 | .1360 | 1-3/4 | 2-7/8 | 20.80 |
| 30 | .1285 | 1-5/8 | 2-3/4 | 20.18 |
| 31 | .1200 | 1-5/8 | 2-3/4 | 20.18 |
| 32 | .1160 | 1-5/8 | 2-3/4 | 20.18 |

METRIC SIZES

| Size | Dec. Equiv. | Flute Length | Overall Length | Price Each |
|------|-------------|--------------|----------------|------------|
| 3.00 | .1181 | 1-5/8 | 2-3/4 | 24.45 |
| 3.10 | .1220 | 1-5/8 | 2-3/4 | 26.04 |
| 3.20 | .1260 | 1-5/8 | 2-3/4 | 26.04 |
| 3.30 | .1299 | 1-3/4 | 2-7/8 | 26.04 |
| 3.50 | .1378 | 1-3/4 | 2-7/8 | 26.04 |
| 4.00 | .1575 | 2-1/8 | 3-1/4 | 27.62 |
| 4.50 | .1772 | 2-3/16 | 3-3/8 | 27.62 |
| 5.00 | .1968 | 2-7/16 | 3-5/8 | 30.35 |
| 5.50 | .2165 | 2-1/2 | 3-3/4 | 30.61 |



| Size | Dec. Equiv. | Flute Length | Overall Length | Price Each |
|------|-------------|--------------|----------------|------------|
| 6.00 | .2362 | 2-3/4 | 4 | 32.77 |
| 6.40 | .2520 | 2-7/8 | 4-1/8 | 38.54 |
| 6.50 | .2559 | 2-7/8 | 4-1/8 | 38.54 |
| 7.00 | .2756 | 2-7/8 | 4-1/8 | 40.01 |
| 7.50 | .2953 | 3-1/16 | 4-3/8 | 41.72 |
| 8.00 | .3150 | 3-3/16 | 4-1/2 | 44.13 |
| 8.50 | .3346 | 3-7/16 | 4-3/4 | 45.59 |
| 9.00 | .3543 | 3-1/2 | 4-7/8 | 47.12 |

| Size | Dec. Equiv. | Flute Length | Overall Length | Price Each |
|-------|-------------|--------------|----------------|------------|
| 9.50 | .3740 | 3-5/8 | 5 | 48.26 |
| 10.00 | .3937 | 3-3/4 | 5-1/8 | 51.24 |
| 10.50 | .4134 | 3-15/16 | 5-3/8 | 55.56 |
| 11.00 | .4331 | 4-1/16 | 5-1/2 | 55.56 |
| 11.50 | .4528 | 4-3/16 | 5-5/8 | 54.86 |
| 12.00 | .4724 | 4-3/8 | 5-7/8 | 69.79 |
| 12.50 | .4921 | 4-1/2 | 6 | 70.49 |
| 13.00 | .5118 | 4-1/2 | 6 | 101.35 |

CARBIDE TIPPED DRILLS



Provides excellent wear resistance when cutting aluminum castings, bronze, cast and ductile irons, fiberglass, hard plastics and other non ferrous materials. **NOT** recommended for steel applications.

● LIST NO. CT840—TAPER LENGTH, 118° POINT

| Size | Flute Length | Overall Length | Price Each |
|-------|--------------|----------------|------------|
| 3/32 | 2-5/8 | 5-1/8 | 26.00 |
| 1/8 | 2-3/4 | 5-1/8 | 27.27 |
| 9/64 | 3 | 5-3/8 | 27.27 |
| 5/32 | 3 | 5-3/8 | 28.73 |
| 11/64 | 3-3/8 | 5-3/4 | 29.24 |
| 3/16 | 3-3/8 | 5-3/4 | 29.24 |
| 5.00 | 3-1/2 | 6-1/4 | 31.05 |
| 13/64 | 3-5/8 | 6 | 30.91 |
| 7/32 | 3-5/8 | 6 | 30.91 |
| 15/64 | 3-3/4 | 6-1/8 | 35.55 |
| "C" | 3-3/4 | 6-1/8 | 35.75 |
| 6.30 | 3-3/4 | 6-1/8 | 39.21 |
| 1/4 | 3-3/4 | 6-1/8 | 34.90 |
| "F" | 3-7/8 | 6-1/4 | 36.69 |
| 17/64 | 3-7/8 | 6-1/4 | 39.89 |
| 9/32 | 3-7/8 | 6-1/4 | 39.16 |
| 19/64 | 4 | 6-3/8 | 43.05 |
| 5/16 | 4 | 6-3/8 | 42.27 |
| "O" | 3-1/2 | 6-1/4 | 45.57 |
| 21/64 | 4-1/8 | 6-1/2 | 47.41 |
| 11/32 | 4-1/8 | 6-1/2 | 46.56 |
| 23/64 | 4-1/4 | 6-3/4 | 52.02 |
| 9.40 | 4 | 6-3/4 | 51.14 |
| 3/8 | 4-1/4 | 6-3/4 | 51.07 |
| 25/64 | 4-3/8 | 7 | 57.28 |
| 13/32 | 4-3/8 | 7 | 56.24 |
| 27/64 | 4-5/8 | 7-1/4 | 65.94 |
| 7/16 | 4-5/8 | 7-1/4 | 64.75 |
| 29/64 | 4-3/4 | 7-1/2 | 72.83 |
| 15/32 | 4-3/4 | 7-1/2 | 71.50 |
| 12.00 | 5-1/2 | 7-1/4 | 75.25 |
| 31/64 | 4-3/4 | 7-3/4 | 76.29 |
| 1/2 | 4-3/4 | 7-3/4 | 74.90 |

● LIST NO. CT820—TAPER SHANK, 118° POINT

| Size | Flute Length | Overall Length | Morse Taper No. | Price Each |
|-------|--------------|----------------|-----------------|------------|
| 1/4 | 2-7/8 | 6-1/8 | 1 | 52.78 |
| 17/64 | 3 | 6-1/4 | 1 | 54.87 |
| 9/32 | 3 | 6-1/4 | 1 | 53.87 |
| 19/64 | 3-1/8 | 6-3/8 | 1 | 54.87 |
| 5/16 | 3-1/8 | 6-3/8 | 1 | 53.87 |
| 21/64 | 3-1/4 | 6-1/2 | 1 | 69.72 |
| 11/32 | 3-1/4 | 6-1/2 | 1 | 68.45 |
| 23/64 | 3-1/2 | 6-3/4 | 1 | 69.72 |
| 3/8 | 3-1/2 | 6-3/4 | 1 | 68.45 |
| 25/64 | 3-5/8 | 7 | 1 | 80.93 |
| 13/32 | 3-5/8 | 7 | 1 | 79.45 |
| 27/64 | 3-7/8 | 7-1/4 | 1 | 80.93 |
| 7/16 | 3-7/8 | 7-1/4 | 1 | 79.45 |
| 29/64 | 4-1/8 | 7-1/2 | 1 | 97.85 |
| 15/32 | 4-1/8 | 7-1/2 | 1 | 96.08 |
| 31/64 | 4-3/8 | 8-1/4 | 2 | 97.85 |
| 1/2 | 4-3/8 | 8-1/4 | 2 | 100.88 |
| 33/64 | 4-5/8 | 8-1/2 | 2 | 109.55 |
| 17/32 | 4-5/8 | 8-1/2 | 2 | 105.64 |
| 35/64 | 4-7/8 | 8-3/4 | 2 | 111.04 |
| 9/16 | 4-7/8 | 8-3/4 | 2 | 107.07 |
| 37/64 | 4-7/8 | 8-3/4 | 2 | 116.21 |
| 19/32 | 4-7/8 | 8-3/4 | 2 | 112.08 |
| 39/64 | 4-7/8 | 8-3/4 | 2 | 132.25 |
| 5/8 | 4-7/8 | 8-3/4 | 2 | 127.52 |
| 41/64 | 5-1/8 | 9 | 2 | 140.22 |
| 21/32 | 5-1/8 | 9 | 2 | 135.21 |
| 43/64 | 5-3/8 | 9-1/4 | 2 | 135.86 |
| 11/16 | 5-3/8 | 9-1/4 | 2 | 131.00 |

| Size | Flute Length | Overall Length | Morse Taper No. | Price Each |
|--------|--------------|----------------|-----------------|------------|
| 45/64 | 5-5/8 | 9-1/2 | 2 | 139.52 |
| 23/32 | 5-5/8 | 9-1/2 | 2 | 134.55 |
| 47/64 | 5-7/8 | 9-3/4 | 2 | 142.41 |
| 3/4 | 5-7/8 | 9-3/4 | 2 | 137.33 |
| 49/64 | 6 | 9-7/8 | 2 | 148.82 |
| 25/32 | 6-1/8 | 9-7/8 | 2 | 150.29 |
| 51/64 | 6-1/8 | 10-3/4 | 3 | 153.71 |
| 13/16 | 6-1/8 | 10-3/4 | 3 | 163.08 |
| 53/64 | 6-1/8 | 10-3/4 | 3 | 175.48 |
| 27/32 | 6-1/8 | 10-3/4 | 3 | 174.68 |
| 55/64 | 6-1/8 | 10-3/4 | 3 | 165.40 |
| 7/8 | 6-1/8 | 10-3/4 | 3 | 165.40 |
| 57/64 | 6-1/8 | 10-3/4 | 3 | 169.72 |
| 29/32 | 6-1/8 | 10-3/4 | 3 | 169.72 |
| 59/64 | 6-1/8 | 10-3/4 | 3 | 177.18 |
| 15/16 | 6-1/8 | 10-3/4 | 3 | 177.18 |
| 61/64 | 6-3/8 | 11 | 3 | 190.15 |
| 31/32 | 6-3/8 | 11 | 3 | 187.45 |
| 63/64 | 6-3/8 | 11 | 3 | 190.15 |
| 1 | 6-3/8 | 11 | 3 | 184.44 |
| 1-1/32 | 6-1/2 | 11-1/8 | 3 | 228.00 |
| 1-1/16 | 6-5/8 | 11-1/4 | 4 | 231.00 |
| 1-3/32 | 6-7/8 | 12-1/2 | 4 | 250.00 |
| 1-1/8 | 7-1/8 | 12-3/4 | 4 | 256.20 |
| 1-5/32 | 7-1/4 | 12-7/8 | 4 | 290.00 |
| 1-3/16 | 7-3/8 | 13 | 4 | 293.00 |
| 1-7/32 | 7-1/2 | 13-1/8 | 4 | 310.00 |
| 1-1/4 | 7-7/8 | 13-1/2 | 4 | 314.00 |

● LIST NO. CT850—DIE DRILLS



- Designed specially for drilling hardened ferrous materials in the range of 45 to 65 Rockwell C:
- Negative cutting edge for extra strength drilling hardened steel.
- Produces reamer like hole size and finish. Can be used for coring out pre-existing holes.

| Size | Flute Length | Overall Length | Price Each |
|-------|--------------|----------------|------------|
| 1/16* | — | 1-1/2 | 19.00 |
| 5/64* | — | 1-1/2 | 19.00 |
| 3/32* | — | 2 | 21.50 |
| 7/64* | — | 2 | 21.50 |
| 1/8* | — | 2 | 21.50 |
| 9/64* | — | 2 | 22.95 |
| 5/32* | — | 2 | 26.50 |
| 11/64 | 1-1/2 | 3-1/2 | 39.98 |
| 3/16 | 1-1/2 | 3-1/2 | 39.98 |
| 13/64 | 1-3/4 | 3-3/4 | 41.23 |
| 7/32 | 1-3/4 | 3-3/4 | 41.23 |

| Size | Flute Length | Overall Length | Price Each |
|-------|--------------|----------------|------------|
| 15/64 | 2 | 4 | 42.72 |
| 1/4 | 2 | 4 | 42.72 |
| 17/64 | 2-1/4 | 4-1/4 | 45.13 |
| 9/32 | 2-1/4 | 4-1/4 | 45.13 |
| 19/64 | 2-1/2 | 4-1/2 | 47.19 |
| 5/16 | 2-1/2 | 4-1/2 | 47.19 |
| 21/64 | 2-3/4 | 4-3/4 | 50.84 |
| 11/32 | 2-3/4 | 4-3/4 | 50.84 |
| 23/64 | 3 | 5 | 54.13 |
| 3/8 | 3 | 5 | 54.13 |

| Size | Flute Length | Overall Length | Price Each |
|-------|--------------|----------------|------------|
| 25/64 | 3 | 5-1/4 | 63.13 |
| 13/32 | 3 | 5-1/4 | 63.16 |
| 27/64 | 3 | 5-1/2 | 73.35 |
| 7/16 | 3 | 5-1/2 | 73.35 |
| 29/64 | 3-1/4 | 5-3/4 | 80.64 |
| 15/32 | 3-1/4 | 5-3/4 | 80.64 |
| 31/64 | 3-1/2 | 6 | 94.53 |
| 1/2 | 3-1/2 | 6 | 94.53 |
| 17/32 | 3-1/2 | 6 | 114.14 |
| 9/16 | 3-1/2 | 6 | 114.14 |

| Size | Flute Length | Overall Length | Price Each |
|-------|--------------|----------------|------------|
| 19/32 | 4 | 7 | 124.54 |
| 5/8 | 4 | 7 | 124.54 |
| 21/32 | 4-1/2 | 7-1/2 | 131.19 |
| 11/16 | 4-1/2 | 7-1/2 | 134.87 |
| 23/32 | 4-3/4 | 8 | 144.00 |
| 3/4 | 4-3/4 | 8 | 145.26 |
| 13/16 | 4-3/4 | 8 | 250.00 |
| 7/8 | 4-3/4 | 8 | 260.00 |
| 15/16 | 4-3/4 | 8 | 288.00 |
| 1 | 4-3/4 | 8 | 299.00 |

* Solid Carbide

● LIST NO. CT860
RC 65 STRAIGHT FLUTE DRILLS



For drilling and center drilling heat treated high speed steel up to 65 Rc. The special point design provides a free cutting action that minimizes heat and produces a smooth hole finish.

| Size | Flute Length | Overall Length | Approx. RPM | Price Each |
|------|--------------|----------------|-------------|------------|
| 1/8 | 1/2 | 3 | 2000 | 58.34 |
| 5/32 | 1/2 | 3 | 1800 | 63.05 |
| 3/16 | 3/4 | 3-1/4 | 1600 | 54.65 |
| 7/32 | 1-1/4 | 3-1/4 | 1400 | 55.75 |
| 1/4 | 1-1/2 | 3-1/2 | 1200 | 58.34 |

| Size | Flute Length | Overall Length | Approx. RPM | Price Each |
|------|--------------|----------------|-------------|------------|
| 5/16 | 1-3/4 | 3-3/4 | 1000 | 61.46 |
| 3/8 | 2 | 4 | 800 | 66.24 |
| 7/16 | 2-1/4 | 4-1/2 | 800 | 88.66 |
| 1/2 | 2-1/2 | 5 | 700 | 107.21 |
| 5/8 | 2-1/2 | 5 | 700 | 134.59 |

● LIST NO. CT600
SCREW MACHINE DRILLS



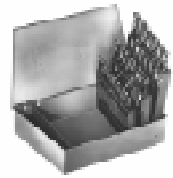
| Size | Flute Length | Overall Length | Price Each |
|------|--------------|----------------|------------|
| 1/8 | 7/8 | 1-7/8 | 24.50 |
| 9/64 | 15/16 | 1-15/16 | 26.50 |
| 5/32 | 1 | 2-1/16 | 27.75 |
| 3/16 | 1-1/8 | 2-3/16 | 29.75 |
| 7/32 | 1-1/4 | 2-3/8 | 29.95 |
| 1/4 | 1-3/8 | 2-1/2 | 32.00 |
| 9/32 | 1-1/2 | 2-11/16 | 38.50 |
| 5/16 | 1-5/8 | 2-13/16 | 42.50 |
| 3/8 | 1-13/16 | 3-1/8 | 47.25 |
| 7/16 | 2-1/16 | 3-7/16 | 55.50 |
| 1/2 | 2-1/4 | 3-3/4 | 69.95 |



SOLID CARBIDE DRILLS

STANDARD LENGTH

● LIST NO. C800



Solid Carbide Drills are designed for drilling abrasive materials when drilling accuracy must be maintained. They are also used in high temperature drilling applications. Solid Carbide Drills are used for drilling cast iron, aluminum, copper, plastics, bronze and other similar materials. Solid Carbide drills are **NOT** recommended for drilling steel.

SET NO. C800SR

Solid Carbide Fractional
13 Piece Set
1/8 - 1/2 by 32nds
Supplied in Metal Case

SET PRICE — \$893.00

SET NO. C800SC

Solid Carbide Fractional
9 Piece Set
1/8 - 1/4 by 64ths
Supplied in Metal Case

SET PRICE — \$256.74

FRACTIONAL SIZES

| Size | Dec. Equiv. | Flute Length | Overall Length | Price Each |
|-------|-------------|--------------|----------------|------------|
| 1/64 | .0156 | 1/4 | 1-1/4 | 18.75 |
| 1/32 | .0312 | 5/16 | 1-1/4 | 15.25 |
| 3/64 | .0469 | 3/4 | 1-1/2 | 13.22 |
| 1/16 | .0625 | 3/4 | 1-1/2 | 13.22 |
| 5/64 | .0781 | 7/8 | 1-3/4 | 14.04 |
| 3/32 | .0938 | 1 | 2 | 15.44 |
| 7/64 | .1094 | 1-1/4 | 2-1/4 | 17.19 |
| 1/8 | .1250 | 1-1/4 | 2-1/4 | 17.81 |
| 9/64 | .1406 | 1-3/8 | 2-1/2 | 19.99 |
| 5/32 | .1562 | 1-3/8 | 2-1/2 | 22.42 |
| 11/64 | .1719 | 1-5/8 | 2-3/4 | 25.01 |
| 3/16 | .1875 | 1-5/8 | 2-3/4 | 26.60 |

| Size | Dec. Equiv. | Flute Length | Overall Length | Price Each |
|-------|-------------|--------------|----------------|------------|
| 13/64 | .2031 | 1-3/4 | 3 | 30.22 |
| 7/32 | .2188 | 1-3/4 | 3 | 33.23 |
| 15/64 | .2344 | 2 | 3-1/4 | 37.25 |
| 1/4 | .2500 | 2 | 3-1/4 | 39.96 |
| 17/64 | .2656 | 2-1/8 | 3-1/2 | 43.97 |
| 9/32 | .2812 | 2-1/8 | 3-1/2 | 46.04 |
| 19/64 | .2969 | 2-3/8 | 3-3/4 | 51.10 |
| 5/16 | .3125 | 2-3/8 | 3-3/4 | 54.07 |
| 21/64 | .3281 | 2-1/2 | 4 | 59.95 |
| 11/32 | .3438 | 2-1/2 | 4 | 64.97 |
| 23/64 | .3594 | 2-3/4 | 4-1/4 | 74.02 |
| 3/8 | .3750 | 2-3/4 | 4-1/4 | 78.05 |

| Size | Dec. Equiv. | Flute Length | Overall Length | Price Each |
|-------|-------------|--------------|----------------|------------|
| 25/64 | .3906 | 2-7/8 | 4-1/2 | 92.00 |
| 13/32 | .4062 | 2-7/8 | 4-1/2 | 100.06 |
| 27/64 | .4219 | 2-7/8 | 4-1/2 | 106.03 |
| 7/16 | .4375 | 2-7/8 | 4-1/2 | 115.00 |
| 29/64 | .4531 | 3 | 4-3/4 | 128.10 |
| 15/32 | .4688 | 3 | 4-3/4 | 138.02 |
| 31/64 | .4844 | 3 | 4-3/4 | 142.00 |
| 1/2 | .5000 | 3 | 4-3/4 | 142.00 |
| 17/32 | .5312 | 4 | 6 | 195.00 |
| 9/16 | .5625 | 4 | 6 | 240.00 |
| 5/8 | .6250 | 4 | 6 | 285.00 |
| 3/4 | .7500 | 4 | 6 | 370.00 |

LETTER SIZES

| Size | Dec. Equiv. | Flute Length | Overall Length | Price Each |
|------|-------------|--------------|----------------|------------|
| A | .2340 | 2 | 3-1/4 | 36.60 |
| B | .2380 | 2 | 3-1/4 | 39.60 |
| C | .2420 | 2 | 3-1/4 | 39.60 |
| D | .2460 | 2 | 3-1/4 | 39.60 |
| E | .2500 | 2 | 3-1/4 | 39.96 |
| F | .2570 | 2 | 3-1/4 | 46.80 |
| G | .2610 | 2-1/8 | 3-1/2 | 47.66 |
| H | .2660 | 2-1/8 | 3-1/2 | 48.24 |
| I | .2720 | 2-1/8 | 3-1/2 | 47.79 |

| Size | Dec. Equiv. | Flute Length | Overall Length | Price Each |
|------|-------------|--------------|----------------|------------|
| J | .2770 | 2-1/8 | 3-1/2 | 48.98 |
| K | .2810 | 2-1/8 | 3-1/2 | 49.50 |
| L | .2900 | 2-1/8 | 3-1/2 | 49.83 |
| M | .2950 | 2-3/8 | 3-3/4 | 52.24 |
| N | .3020 | 2-3/8 | 3-3/4 | 55.56 |
| O | .3160 | 2-3/8 | 3-3/4 | 61.96 |
| P | .3230 | 2-3/8 | 3-3/4 | 61.96 |
| Q | .3320 | 2-1/2 | 4 | 65.61 |
| R | .3390 | 2-1/2 | 4 | 67.64 |

| Size | Dec. Equiv. | Flute Length | Overall Length | Price Each |
|------|-------------|--------------|----------------|------------|
| S | .3480 | 2-1/2 | 4 | 70.27 |
| T | .3580 | 2-3/4 | 4-1/4 | 75.00 |
| U | .3680 | 2-3/4 | 4-1/4 | 86.00 |
| V | .3770 | 2-3/4 | 4-1/4 | 92.10 |
| W | .3860 | 2-7/8 | 4-1/2 | 92.10 |
| X | .3970 | 2-7/8 | 4-1/2 | 99.34 |
| Y | .4040 | 2-7/8 | 4-1/2 | 103.24 |
| Z | .4130 | 2-7/8 | 4-1/2 | 113.00 |

WIRE GAUGE SIZES

| Size | Dec. Equiv. | Flute Length | Overall Length | Price Each |
|------|-------------|--------------|----------------|------------|
| 1 | .2280 | 1-3/4 | 3 | 35.38 |
| 2 | .2210 | 1-3/4 | 3 | 34.82 |
| 3 | .2130 | 1-3/4 | 3 | 32.62 |
| 4 | .2090 | 1-3/4 | 3 | 31.83 |
| 5 | .2055 | 1-3/4 | 3 | 30.99 |
| 6 | .2040 | 1-3/4 | 3 | 30.60 |
| 7 | .2010 | 1-3/4 | 3 | 29.42 |
| 8 | .1990 | 1-3/4 | 3 | 28.98 |
| 9 | .1960 | 1-3/4 | 3 | 28.42 |
| 10 | .1935 | 1-5/8 | 2-3/4 | 27.61 |
| 11 | .1910 | 1-5/8 | 2-3/4 | 27.19 |
| 12 | .1890 | 1-5/8 | 2-3/4 | 26.77 |
| 13 | .1850 | 1-5/8 | 2-3/4 | 26.39 |
| 14 | .1820 | 1-5/8 | 2-3/4 | 26.77 |
| 15 | .1800 | 1-5/8 | 2-3/4 | 26.55 |
| 16 | .1770 | 1-5/8 | 2-3/4 | 25.55 |
| 17 | .1730 | 1-5/8 | 2-3/4 | 25.13 |
| 18 | .1695 | 1-5/8 | 2-3/4 | 24.50 |
| 19 | .1660 | 1-5/8 | 2-3/4 | 25.02 |
| 20 | .1610 | 1-3/8 | 2-1/2 | 23.61 |
| 21 | .1590 | 1-3/8 | 2-1/2 | 23.70 |
| 22 | .1570 | 1-3/8 | 2-1/2 | 22.98 |
| 23 | .1540 | 1-3/8 | 2-1/2 | 22.59 |
| 24 | .1520 | 1-3/8 | 2-1/2 | 21.80 |
| 25 | .1495 | 1-3/8 | 2-1/2 | 20.62 |
| 26 | .1470 | 1-3/8 | 2-1/2 | 20.39 |
| 27 | .1440 | 1-3/8 | 2-1/2 | 19.98 |

| Size | Dec. Equiv. | Flute Length | Overall Length | Price Each |
|------|-------------|--------------|----------------|------------|
| 28 | .1405 | 1-3/8 | 2-1/2 | 19.78 |
| 29 | .1360 | 1-3/8 | 2-1/2 | 19.35 |
| 30 | .1285 | 1-1/4 | 2-1/4 | 18.62 |
| 31 | .1200 | 1-1/4 | 2-1/4 | 18.40 |
| 32 | .1160 | 1-1/4 | 2-1/4 | 18.19 |
| 33 | .1130 | 1-1/4 | 2-1/4 | 17.83 |
| 34 | .1110 | 1-1/4 | 2-1/4 | 17.83 |
| 35 | .1100 | 1-1/4 | 2-1/4 | 17.22 |
| 36 | .1065 | 1-1/4 | 2-1/4 | 16.65 |
| 37 | .1040 | 1-1/4 | 2-1/4 | 16.65 |
| 38 | .1015 | 1-1/4 | 2-1/4 | 16.65 |
| 39 | .0995 | 1-1/4 | 2-1/4 | 16.35 |
| 40 | .0980 | 1 | 2 | 15.79 |
| 41 | .0960 | 1 | 2 | 15.79 |
| 42 | .0935 | 1 | 2 | 15.22 |
| 43 | .0890 | 1 | 2 | 15.22 |
| 44 | .0860 | 1 | 2 | 15.22 |
| 45 | .0820 | 7/8 | 1-3/4 | 14.61 |
| 46 | .0810 | 7/8 | 1-3/4 | 14.61 |
| 47 | .0785 | 7/8 | 1-3/4 | 13.98 |
| 48 | .0760 | 7/8 | 1-3/4 | 13.98 |
| 49 | .0730 | 7/8 | 1-3/4 | 13.98 |
| 50 | .0700 | 7/8 | 1-3/4 | 13.98 |
| 51 | .0670 | 3/4 | 1-1/2 | 13.18 |
| 52 | .0635 | 3/4 | 1-1/2 | 13.18 |
| 53 | .0595 | 3/4 | 1-1/2 | 13.18 |
| 54 | .0550 | 3/4 | 1-1/2 | 13.42 |

| Size | Dec. Equiv. | Flute Length | Overall Length | Price Each |
|------|-------------|--------------|----------------|------------|
| 55 | .0520 | 3/4 | 1-1/2 | 13.42 |
| 56 | .0465 | 3/4 | 1-1/2 | 13.42 |
| 57 | .0430 | 3/4 | 1-1/2 | 13.42 |
| 58 | .0420 | 3/4 | 1-1/2 | 13.42 |
| 59 | .0410 | 3/4 | 1-1/2 | 13.42 |
| 60 | .0400 | 3/4 | 1-1/2 | 13.42 |
| 61 | .0390 | 5/8 | 1-1/2 | 14.45 |
| 62 | .0380 | 5/8 | 1-1/2 | 14.45 |
| 63 | .0370 | 5/8 | 1-1/2 | 14.45 |
| 64 | .0360 | 5/8 | 1-1/2 | 14.45 |
| 65 | .0350 | 5/8 | 1-1/2 | 14.45 |
| 66 | .0330 | 5/16 | 1-1/4 | 15.35 |
| 67 | .0320 | 5/16 | 1-1/4 | 15.35 |
| 68 | .0310 | 5/16 | 1-1/4 | 15.35 |
| 69 | .0292 | 5/16 | 1-1/4 | 15.35 |
| 70 | .0280 | 5/16 | 1-1/4 | 15.35 |
| 71 | .0260 | 5/16 | 1-1/4 | 15.35 |
| 72 | .0250 | 5/16 | 1-1/4 | 15.35 |
| 73 | .0240 | 1/4 | 1-1/4 | 18.00 |
| 74 | .0225 | 1/4 | 1-1/4 | 18.00 |
| 75 | .0210 | 1/4 | 1-1/4 | 18.00 |
| 76 | .0200 | 1/4 | 1-1/4 | 18.00 |
| 77 | .0180 | 1/4 | 1-1/4 | 19.00 |
| 78 | .0160 | 1/4 | 1-1/4 | 19.00 |
| 79 | .0145 | 1/4 | 1-1/4 | 19.00 |
| 80 | .0135 | 1/4 | 1-1/4 | 19.00 |

SOLID CARBIDE METRIC DRILLS

■ LIST NO. C800



| Size mm | Dec. Equiv. | Flute Length | Overall Length | Price Each |
|---------|-------------|--------------|----------------|------------|
| 1.50 | .0591 | 3/4 | 1-1/2 | 13.50 |
| 2.00 | .0787 | 7/8 | 1-3/4 | 13.75 |
| 2.50 | .0984 | 1 | 2 | 16.35 |
| 3.00 | .1181 | 1-1/4 | 2-1/4 | 17.70 |
| 3.50 | .1378 | 1-3/8 | 2-1/2 | 19.50 |
| 4.00 | .1575 | 1-3/8 | 2-1/2 | 22.98 |
| 4.50 | .1772 | 1-5/8 | 2-3/4 | 25.55 |
| 5.00 | .1969 | 1-3/4 | 3 | 28.90 |

| Size mm | Dec. Equiv. | Flute Length | Overall Length | Price Each |
|---------|-------------|--------------|----------------|------------|
| 5.50 | .2165 | 1-3/4 | 3 | 32.44 |
| 6.00 | .2362 | 2 | 3-1/4 | 39.49 |
| 6.50 | .2559 | 2 | 3-1/4 | 46.20 |
| 7.00 | .2756 | 2-1/8 | 3-1/2 | 47.79 |
| 7.50 | .2953 | 2-3/8 | 3-3/4 | 51.10 |
| 8.00 | .3150 | 2-3/8 | 3-3/4 | 61.96 |
| 8.50 | .3346 | 2-1/2 | 4 | 67.64 |

| Size mm | Dec. Equiv. | Flute Length | Overall Length | Price Each |
|---------|-------------|--------------|----------------|------------|
| 9.00 | .3543 | 2-1/2 | 4 | 75.00 |
| 9.50 | .3740 | 2-3/4 | 4-1/4 | 85.90 |
| 10.00 | .3937 | 2-7/8 | 4-1/2 | 99.34 |
| 10.50 | .4134 | 2-7/8 | 4-1/2 | 106.01 |
| 11.00 | .4331 | 2-7/8 | 4-1/2 | 114.97 |
| 11.50 | .4528 | 3 | 4-3/4 | 128.10 |
| 12.00 | .4724 | 3 | 4-3/4 | 141.91 |

SOLID CARBIDE SCREW MACHINE LENGTH DRILLS

■ LIST NO. C600



| Size | Dec. Equiv. | Flute Length | Overall Length | Price Each |
|-------|-------------|--------------|----------------|------------|
| 1/32 | .0312 | 3/8 | 1-1/8 | 11.90 |
| 3/64 | .0469 | 1/2 | 1-1/2 | 11.90 |
| 1/16 | .0625 | 5/8 | 1-5/8 | 11.90 |
| 5/64 | .0781 | 11/16 | 1-11/16 | 11.90 |
| 3/32 | .0938 | 3/4 | 1-3/4 | 11.90 |
| 7/64 | .1094 | 13/16 | 1-13/16 | 11.90 |
| 1/8 | .1250 | 7/8 | 1-7/8 | 10.75 |
| 9/64 | .1406 | 15/16 | 1-15/16 | 12.75 |
| 5/32 | .1562 | 1 | 2-1/16 | 14.25 |
| 11/64 | .1719 | 1-1/16 | 2-1/8 | 18.00 |
| 3/16 | .1875 | 1-1/8 | 2-3/16 | 18.50 |

| Size | Dec. Equiv. | Flute Length | Overall Length | Price Each |
|-------|-------------|--------------|----------------|------------|
| 13/64 | .2031 | 1-3/16 | 2-1/4 | 20.40 |
| 7/32 | .2188 | 1-1/4 | 2-3/8 | 20.40 |
| 15/64 | .2344 | 1-5/16 | 2-7/16 | 27.75 |
| 1/4 | .2500 | 1-3/8 | 2-1/2 | 27.75 |
| 17/64 | .2656 | 1-7/16 | 2-5/8 | 29.95 |
| 9/32 | .2812 | 1-1/2 | 2-11/16 | 31.90 |
| 19/64 | .2969 | 1-9/16 | 2-3/4 | 34.70 |
| 5/16 | .3125 | 1-5/8 | 2-13/16 | 34.70 |
| 21/64 | .3281 | 1-11/16 | 2-15/16 | 39.50 |
| 11/32 | .3438 | 1-11/16 | 3 | 42.70 |

| Size | Dec. Equiv. | Flute Length | Overall Length | Price Each |
|-------|-------------|--------------|----------------|------------|
| 23/64 | .3594 | 1-3/4 | 3-1/16 | 46.60 |
| 3/8 | .3750 | 1-13/16 | 3-1/8 | 46.60 |
| 25/64 | .3906 | 1-7/8 | 3-1/4 | 54.40 |
| 13/32 | .4062 | 1-15/16 | 3-5/16 | 60.30 |
| 27/64 | .4219 | 2 | 3-3/8 | 67.30 |
| 7/16 | .4375 | 2-1/16 | 3-7/16 | 67.30 |
| 29/64 | .4531 | 2-1/8 | 3-9/16 | 80.70 |
| 15/32 | .4688 | 2-1/8 | 3-5/8 | 84.75 |
| 31/64 | .4844 | 2-3/16 | 3-11/16 | 84.75 |
| 1/2 | .5000 | 2-1/4 | 3-3/4 | 84.75 |

SOLID CARBIDE STRAIGHT FLUTE DRILLS

■ LIST NO. C801



Designed for drilling hardened, treated and abrasive materials. These drills penetrate most work pieces easily with minimal deflection.

| Size | Dec. Equiv. | Flute Length | Overall Length | Price Each |
|-------|-------------|--------------|----------------|------------|
| 3/64 | .0469 | 1/2 | 1-1/2 | 8.50 |
| 1/16 | .0625 | 5/8 | 1-5/8 | 8.80 |
| 5/64 | .0781 | 11/16 | 1-11/16 | 9.00 |
| 3/32 | .0938 | 3/4 | 1-3/4 | 9.50 |
| 7/64 | .1094 | 13/16 | 1-13/16 | 10.95 |
| 1/8 | .1250 | 7/8 | 1-7/8 | 11.25 |
| 9/64 | .1406 | 15/16 | 1-15/16 | 13.00 |
| 5/32 | .1562 | 1 | 2-1/16 | 14.00 |
| 11/64 | .1719 | 1-1/16 | 2-1/8 | 17.60 |
| 3/16 | .1875 | 1-1/8 | 2-3/16 | 18.28 |

| Size | Dec. Equiv. | Flute Length | Overall Length | Price Each |
|-------|-------------|--------------|----------------|------------|
| 13/64 | .2031 | 1-3/16 | 2-1/4 | 19.78 |
| 7/32 | .2188 | 1-1/4 | 2-3/8 | 19.78 |
| 15/64 | .2344 | 1-5/16 | 2-7/16 | 26.79 |
| 1/4 | .2500 | 1-3/8 | 2-1/2 | 22.60 |
| 17/64 | .2656 | 1-7/16 | 2-5/8 | 32.00 |
| 9/32 | .2812 | 1-1/2 | 2-11/16 | 34.40 |
| 19/64 | .2969 | 1-9/16 | 2-3/4 | 38.09 |
| 5/16 | .3125 | 1-5/8 | 2-13/16 | 34.40 |
| 21/64 | .3281 | 1-11/16 | 2-15/16 | 42.08 |
| 11/32 | .3438 | 1-11/16 | 3 | 46.80 |

| Size | Dec. Equiv. | Flute Length | Overall Length | Price Each |
|-------|-------------|--------------|----------------|------------|
| 23/64 | .3594 | 1-3/4 | 3-1/16 | 52.35 |
| 3/8 | .3750 | 1-13/16 | 3-1/8 | 42.95 |
| 25/64 | .3906 | 1-7/8 | 3-1/4 | 59.97 |
| 13/32 | .4062 | 1-15/16 | 3-5/16 | 66.25 |
| 27/64 | .4219 | 2 | 3-3/8 | 72.96 |
| 7/16 | .4375 | 2-1/16 | 3-7/16 | 68.66 |
| 29/64 | .4531 | 2-1/8 | 3-9/16 | 88.25 |
| 15/32 | .4688 | 2-1/8 | 3-5/8 | 92.61 |
| 31/64 | .4844 | 2-3/16 | 3-11/16 | 92.61 |
| 1/2 | .5000 | 2-1/4 | 3-3/4 | 84.27 |

SOLID CARBIDE SPADE DRILLS

■ LIST NO. C802



Designed for thin sheet metal and shallow hole drilling

| Size | Dec. Equiv. | Flute Length | Overall Length | Price Each |
|------|-------------|--------------|----------------|------------|
| 1/16 | .0625 | 5/16 | 1-1/2 | 8.75 |
| 3/32 | .0938 | 3/8 | 1-1/2 | 8.75 |
| 1/8 | .1250 | 7/16 | 1-1/2 | 7.50 |
| 5/32 | .1562 | 15/32 | 2 | 13.90 |
| 3/16 | .1875 | 9/16 | 2 | 13.90 |
| 1/4 | .2500 | 11/16 | 2 | 13.90 |
| 9/32 | .2812 | 3/4 | 2-1/2 | 18.60 |

| Size | Dec. Equiv. | Flute Length | Overall Length | Price Each |
|-------|-------------|--------------|----------------|------------|
| 5/16 | .3125 | 7/8 | 2-1/2 | 18.60 |
| 11/32 | .3438 | 15/16 | 2-1/2 | 22.77 |
| 3/8 | .3750 | 1 | 2-1/2 | 22.77 |
| 13/32 | .4062 | 1 | 2-1/2 | 31.70 |
| 7/16 | .4375 | 1-1/16 | 2-1/2 | 31.70 |
| 15/32 | .4688 | 1-3/32 | 2-1/2 | 34.00 |
| 1/2 | .5000 | 1-1/8 | 3 | 34.00 |



THREADED SHANK ADAPTER DRILLS

1/4-28 THREADED SHANK – 135° SPLIT POINT

NATIONAL AEROSPACE STANDARD (NAS965)

- LIST NO. 602 — HIGH SPEED
- LIST NO. 602C — COBALT



STUB SERIES

| Size | Dec. Equiv. | Flute Length | Overall Length* | Price Each | |
|------|-------------|--------------|-----------------|--------------|---------------|
| | | | | List No. 602 | List No. 602C |
| 58 | .0420 | 1/4 | 1/2 | 4.60 | 5.00 |
| 57 | .0430 | 5/16 | 1/2 | 4.60 | 5.00 |
| 55 | .0520 | 5/16 | 1/2 | 4.60 | 5.00 |
| 54 | .0550 | 5/16 | 1/2 | 4.60 | 5.00 |
| 53 | .0595 | 5/16 | 1/2 | 4.60 | 5.10 |
| 52 | .0635 | 5/16 | 1/2 | 4.60 | 5.10 |
| 50 | .0700 | 5/16 | 1/2 | 4.60 | 5.10 |
| 40 | .0980 | 5/16 | 1/2 | 3.70 | 4.50 |
| 1/8 | .1250 | 5/16 | 1/2 | 3.80 | 4.60 |
| 30 | .1285 | 5/16 | 9/16 | 3.90 | 4.70 |
| 29 | .1360 | 5/16 | 9/16 | 3.95 | 4.75 |
| 28 | .1405 | 5/16 | 9/16 | 3.95 | 4.75 |
| 27 | .1440 | 5/16 | 9/16 | 4.00 | 4.80 |
| 5/32 | .1562 | 5/16 | 9/16 | 4.00 | 4.80 |
| 21 | .1590 | 5/16 | 9/16 | 4.00 | 4.80 |
| 20 | .1610 | 5/16 | 9/16 | 4.00 | 4.80 |
| 19 | .1660 | 5/16 | 9/16 | 4.00 | 4.80 |
| 16 | .1770 | 5/16 | 9/16 | 4.50 | 5.30 |

| Size | Dec. Equiv. | Flute Length | Overall Length* | Price Each | |
|--------|-------------|--------------|-----------------|--------------|---------------|
| | | | | List No. 602 | List No. 602C |
| 13 | .1850 | 5/16 | 9/16 | 4.60 | 5.40 |
| 3/16 | .1875 | 5/16 | 9/16 | 4.70 | 5.50 |
| 12 | .1890 | 5/16 | 9/16 | 4.75 | 5.55 |
| 11 | .1910 | 5/16 | 9/16 | 4.80 | 5.60 |
| 10 | .1935 | 5/16 | 9/16 | 4.80 | 5.60 |
| 7 | .2010 | 5/16 | 5/8 | — | 5.70 |
| 6 | .2040 | 5/16 | 5/8 | 4.90 | 5.70 |
| 5 | .2055 | 5/16 | 5/8 | 4.90 | 5.70 |
| 3 | .2130 | 5/16 | 5/8 | 4.95 | 5.75 |
| 7/32 | .2188 | 5/16 | 5/8 | 5.00 | 5.80 |
| 15/64 | .2344 | 5/16 | 5/8 | — | 6.30 |
| 1/4 | .2500 | 5/16 | 5/8 | 5.50 | 6.50 |
| 6.40mm | .2520 | 5/16 | 5/8 | 5.70 | 6.70 |
| F | .2570 | 5/16 | 5/8 | 5.75 | 6.80 |
| 9/32 | .2812 | 5/16 | 5/8 | 6.50 | 8.20 |
| 21/64 | .3281 | 5/16 | 5/8 | 11.25 | 15.00 |
| 11/32 | .3438 | 5/16 | 5/8 | 12.50 | 15.20 |

* Not including threads

- LIST NO. 603 — HIGH SPEED
- LIST NO. 603C — COBALT



SHORT SERIES

| Size | Dec. Equiv. | Flute Length | Overall Length* | Price Each | |
|------|-------------|--------------|-----------------|--------------|---------------|
| | | | | List No. 603 | List No. 603C |
| 60 | .0400 | 9/16 | 1 | 4.60 | — |
| 1/16 | .0625 | 9/16 | 1 | 4.60 | — |
| 50 | .0700 | 9/16 | 1 | 4.60 | 5.00 |
| 5/64 | .0781 | 9/16 | 1 | 4.60 | — |
| 42 | .0935 | 9/16 | 1 | 4.60 | 5.00 |
| 3/32 | .0938 | 9/16 | 1 | 4.60 | — |
| 41 | .0960 | 9/16 | 1 | 4.20 | — |
| 40 | .0980 | 9/16 | 1 | 3.70 | 4.50 |
| 39 | .0995 | 9/16 | 1 | 3.75 | 4.55 |
| 38 | .1015 | 9/16 | 1 | 3.75 | 4.55 |
| 36 | .1065 | 9/16 | 1 | 3.75 | 4.55 |
| 7/64 | .1094 | 9/16 | 1 | 3.75 | — |
| 35 | .1100 | 9/16 | 1 | 3.75 | 4.55 |
| 33 | .1130 | 9/16 | 1 | 3.80 | 4.60 |
| 31 | .1200 | 9/16 | 1 | 3.80 | — |
| 1/8 | .1250 | 9/16 | 1 | 3.80 | 4.60 |
| 30 | .1285 | 9/16 | 1-1/4 | 3.90 | 4.70 |
| 29 | .1360 | 9/16 | 1-1/4 | 3.95 | 4.75 |
| 28 | .1405 | 9/16 | 1-1/4 | 3.95 | 4.75 |
| 9/64 | .1406 | 9/16 | 1-1/4 | 3.95 | 4.75 |
| 27 | .1440 | 9/16 | 1-1/4 | 4.00 | 4.80 |
| 24 | .1520 | 9/16 | 1-1/4 | 4.00 | — |
| 5/32 | .1562 | 9/16 | 1-1/4 | 4.00 | 4.80 |
| 22 | .1570 | 9/16 | 1-1/4 | 4.00 | 4.80 |
| 21 | .1590 | 9/16 | 1-1/4 | 4.00 | 4.80 |
| 20 | .1610 | 9/16 | 1-1/4 | 4.00 | 4.80 |
| 19 | .1660 | 9/16 | 1-1/4 | 4.10 | 4.90 |
| 18 | .1695 | 9/16 | 1-1/4 | 4.50 | — |

| Size | Dec. Equiv. | Flute Length | Overall Length* | Price Each | |
|-------|-------------|--------------|-----------------|--------------|---------------|
| | | | | List No. 603 | List No. 603C |
| 11/64 | .1719 | 9/16 | 1-1/4 | 4.50 | 5.40 |
| 17 | .1730 | 9/16 | 1-1/4 | 4.55 | 5.50 |
| 16 | .1770 | 9/16 | 1-1/4 | 4.60 | 5.55 |
| 13 | .1850 | 9/16 | 1-1/4 | 4.85 | 5.60 |
| 3/16 | .1875 | 9/16 | 1-1/4 | 4.90 | 5.85 |
| 12 | .1890 | 9/16 | 1-1/4 | 5.00 | 5.85 |
| 11 | .1910 | 9/16 | 1-1/4 | 5.00 | 5.85 |
| 10 | .1935 | 9/16 | 1-1/4 | 5.00 | 5.85 |
| 9 | .1960 | 9/16 | 1-1/4 | 5.10 | 6.00 |
| 8 | .1990 | 9/16 | 1-1/4 | 5.15 | 6.05 |
| 6 | .2040 | 9/16 | 1-1/4 | 5.20 | 6.10 |
| 5 | .2055 | 9/16 | 1-1/4 | 5.25 | 6.15 |
| 7/32 | .2188 | 9/16 | 1-1/4 | 5.35 | 6.35 |
| 2 | .2210 | 9/16 | 1-1/4 | 5.50 | — |
| 1 | .2280 | 9/16 | 1-1/4 | 5.50 | 6.40 |
| 15/64 | .2344 | 9/16 | 1-1/4 | 5.70 | 6.90 |
| B | .2380 | 9/16 | 1-1/4 | 6.00 | 7.20 |
| D | .2460 | 9/16 | 1-1/4 | 6.10 | 7.90 |
| 1/4 | .2500 | 9/16 | 1-1/4 | 6.20 | 7.90 |
| F | .2570 | 9/16 | 1-1/4 | 6.50 | 8.00 |
| H | .2660 | 9/16 | 1-1/4 | 7.00 | 8.10 |
| 9/32 | .2812 | 9/16 | 1-1/4 | 7.50 | 9.00 |
| O | .3160 | 9/16 | 1-1/4 | 14.00 | — |
| 21/64 | .3281 | 9/16 | 1-1/4 | 12.20 | 16.00 |
| 11/32 | .3438 | 9/16 | 1-1/4 | 13.10 | 16.10 |
| 3/8 | .3750 | 9/16 | 1-1/4 | 13.20 | 16.50 |
| 1/2 | .5000 | 9/16 | 1-1/4 | 26.00 | — |

* Not including threads

HIGH SPEED STEEL

AIRCRAFT TAPER ROUTER

LEFT HAND HELIX, RIGHT HAND CUT

- LIST NO. 606
- 9/16 Length of Cut, 2-3/8 OAL

| Size | Price Each |
|------|------------|
| 1/4 | 2.99 |
| 5/16 | 5.75 |



THREADED SHANK ADAPTER DRILLS

1/4-28 THREADED SHANK – 135° SPLIT POINT

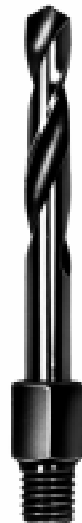
LONG SERIES – 2-1/8" OVERALL LENGTH*



■ LIST NO. 604 — HIGH SPEED

■ LIST NO. 604C — COBALT

| Size | Dec. Equiv. | Flute Length | Price Each | |
|------|-------------|--------------|--------------|---------------|
| | | | List No. 604 | List No. 604C |
| 1/16 | .0625 | 7/8 | 4.90 | 5.60 |
| 51 | .0670 | 7/8 | — | 5.60 |
| 50 | .0700 | 7/8 | 4.90 | 5.60 |
| 49 | .0730 | 7/8 | 4.90 | 5.60 |
| 48 | .0760 | 7/8 | 4.90 | 5.60 |
| 5/64 | .0781 | 7/8 | 4.90 | 5.60 |
| 46 | .0810 | 7/8 | 5.20 | 5.90 |
| 45 | .0820 | 7/8 | 5.20 | 5.90 |
| 43 | .0890 | 7/8 | 5.20 | 5.90 |
| 42 | .0935 | 7/8 | 5.20 | — |
| 3/32 | .0938 | 7/8 | 5.20 | — |
| 41 | .0960 | 7/8 | 5.20 | — |
| 40 | .0980 | 7/8 | 3.75 | 4.60 |
| 39 | .0995 | 7/8 | 3.90 | 4.70 |
| 38 | .1015 | 7/8 | 3.90 | 4.70 |
| 7/64 | .1094 | 7/8 | 3.90 | 4.70 |
| 35 | .1100 | 7/8 | 3.90 | 4.70 |
| 34 | .1110 | 7/8 | 3.95 | 4.75 |
| 33 | .1130 | 7/8 | 4.00 | 4.80 |
| 32 | .1160 | 7/8 | 4.00 | 4.80 |
| 31 | .1200 | 7/8 | 4.10 | 4.90 |
| 1/8 | .1250 | 7/8 | 4.10 | 4.90 |
| 30 | .1285 | 7/8 | 4.20 | 4.90 |
| 29 | .1360 | 1-1/8 | 4.25 | 4.95 |
| 28 | .1405 | 1-1/8 | 4.25 | 4.95 |
| 9/64 | .1406 | 1-1/8 | 4.25 | 4.95 |
| 27 | .1440 | 1-1/8 | 4.30 | 5.00 |
| 26 | .1470 | 1-1/8 | 4.35 | 5.10 |
| 25 | .1495 | 1-1/8 | 4.40 | 5.10 |
| 24 | .1520 | 1-1/8 | — | 5.25 |
| 23 | .1540 | 1-1/8 | 4.50 | 5.25 |
| 5/32 | .1562 | 1-1/8 | 4.50 | 5.25 |
| 21 | .1590 | 1-1/8 | 4.50 | 5.25 |
| 20 | .1610 | 1-1/8 | 4.50 | 5.25 |



| Size | Dec. Equiv. | Flute Length | Price Each | |
|-------|-------------|--------------|--------------|---------------|
| | | | List No. 604 | List No. 604C |
| 19 | .1660 | 1-1/8 | 4.60 | 5.40 |
| 18 | .1695 | 1-1/8 | 4.65 | 5.50 |
| 11/64 | .1719 | 1-1/8 | 4.70 | 5.70 |
| 17 | .1730 | 1-1/8 | 4.85 | 5.80 |
| 16 | .1770 | 1-1/8 | 4.90 | 5.90 |
| 15 | .1800 | 1-1/8 | 4.95 | 5.95 |
| 14 | .1820 | 1-1/8 | 5.10 | 6.10 |
| 13 | .1850 | 1-1/8 | 5.20 | 6.20 |
| 3/16 | .1875 | 1-1/8 | 5.30 | 6.30 |
| 12 | .1890 | 1-1/8 | 5.40 | 6.35 |
| 11 | .1910 | 1-1/8 | 5.60 | 6.50 |
| 10 | .1935 | 1-1/8 | 5.65 | 6.55 |
| 8 | .1990 | 1-1/8 | 5.70 | 6.60 |
| 5 | .2055 | 1-1/8 | 5.75 | 6.75 |
| 4 | .2090 | 1-1/8 | 5.80 | — |
| 3 | .2130 | 1-1/8 | 5.80 | 6.90 |
| 7/32 | .2188 | 1-1/8 | 5.90 | 7.50 |
| 2 | .2210 | 1-1/8 | 5.95 | 8.00 |
| C | .2420 | 1-1/8 | 6.00 | 8.10 |
| D | .2460 | 1-1/8 | 6.40 | 8.20 |
| 1/4 | .2500 | 1-1/8 | 6.45 | 8.20 |
| F | .2570 | 1-1/8 | 7.00 | — |
| I | .2720 | 1-1/8 | 7.00 | 8.40 |
| J | .2770 | 1-1/8 | 7.10 | 8.50 |
| 9/32 | .2812 | 1-1/8 | 7.10 | — |
| M | .2950 | 1-1/8 | 7.50 | 9.00 |
| 5/16 | .3125 | 1-1/8 | 10.00 | 10.50 |
| O | .3160 | 1-1/8 | 11.00 | 13.00 |
| 21/64 | .3281 | 1-1/8 | 14.00 | 16.00 |
| R | .3390 | 1-1/8 | 14.50 | 17.00 |
| 11/32 | .3438 | 1-1/8 | 15.00 | 19.80 |
| 3/8 | .3750 | 1-1/8 | 15.25 | 19.50 |
| W | .3860 | 1-1/8 | 16.00 | 19.75 |
| 1/2 | .5000 | 1-1/8 | 28.00 | — |

*Not including threads

EXTRA LONG SERIES – 3" OVERALL LENGTH*

■ LIST NO. 605 — HIGH SPEED

| Size | Dec. Equiv. | Flute Length | Price Each |
|------|-------------|--------------|------------|
| 3/32 | .0938 | 1-1/4 | 8.76 |
| 30 | .1285 | 1-5/8 | 6.21 |
| 5/32 | .1562 | 2 | 7.38 |

| Size | Dec. Equiv. | Flute Length | Price Each |
|------|-------------|--------------|------------|
| 20 | .1610 | 2 | 6.75 |
| 13 | .1850 | 2-5/16 | 8.07 |
| 3/16 | .1875 | 2-5/16 | 7.74 |

| Size | Dec. Equiv. | Flute Length | Price Each |
|------|-------------|--------------|------------|
| F | .2570 | 2-7/8 | 8.94 |
| 5/16 | .3125 | 1-5/8 | 16.11 |

*Not including threads

COBALT AIRCRAFT TYPE "D" DRILLS

JOBBER LENGTH — 135° SPLIT POINT

● LIST NO. 319C



Designed for handling the higher thrust loads when drilling tough high tensile and heat resistant alloy steels. Due to its heavy Web 135° Split Point, short flute and jobber length construction, it provides for a more rigid tool, eliminating vibration and flexing.

FRACTIONAL SIZES

LETTER SIZES

| Size | Dec. Equiv. | Flute Length | Overall Length | Price Each |
|------|-------------|--------------|----------------|------------|
| 1/16 | .0625 | 5/8 | 1-7/8 | 2.59 |
| 5/64 | .0781 | 11/16 | 2 | 2.69 |
| 3/32 | .0938 | 3/4 | 2-1/4 | 2.59 |
| 7/64 | .1094 | 13/16 | 2-5/8 | 2.99 |
| 1/8 | .1250 | 7/8 | 2-3/4 | 3.39 |
| 9/64 | .1406 | 15/16 | 2-1/8 | 3.80 |
| 5/32 | .1562 | 1 | 3-1/8 | 4.29 |
| 3/16 | .1875 | 1-1/8 | 3-1/2 | 4.69 |
| 7/32 | .2188 | 1-1/4 | 3-3/4 | 6.19 |

| Size | Dec. Equiv. | Flute Length | Overall Length | Price Each |
|-------|-------------|--------------|----------------|------------|
| 1/4 | .2500 | 1-3/8 | 4 | 6.89 |
| 9/32 | .2812 | 1-1/2 | 4-1/2 | 8.70 |
| 5/16 | .3125 | 1-5/8 | 4-1/2 | 11.19 |
| 21/64 | .3281 | 1-11/16 | 4-5/8 | 12.99 |
| 3/8 | .3750 | 1-13/16 | 5 | 15.69 |
| 7/16 | .4375 | 2-1/16 | 5-1/2 | 21.79 |
| 15/32 | .4688 | 2-1/8 | 5-3/4 | 26.59 |
| 31/64 | .4844 | 2-3/16 | 5-7/8 | 28.99 |
| 1/2 | .5000 | 2-1/4 | 6 | 26.69 |

| Size | Dec. Equiv. | Flute Length | Overall Length | Price Each |
|------|-------------|--------------|----------------|------------|
| A | .2340 | 1-5/16 | 3-7/8 | 7.86 |
| F | .2570 | 1-7/16 | 4-1/8 | 8.98 |
| G | .2610 | 1-7/16 | 4-1/8 | 9.05 |
| H | .2660 | 1-1/2 | 4-1/8 | 10.20 |
| J | .2770 | 1-1/2 | 4-1/8 | 10.20 |
| L | .2900 | 1-9/16 | 4-1/4 | 11.58 |
| P | .3230 | 1-11/16 | 4-5/8 | 12.95 |
| R | .3390 | 1-11/16 | 4-3/4 | 14.95 |
| V | .3770 | 1-7/8 | 5 | 20.20 |

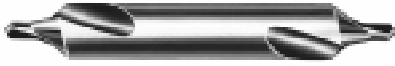
WIRE GAUGE SIZES

| Size | Dec. Equiv. | Flute Length | Overall Length | Price Each |
|------|-------------|--------------|----------------|------------|
| 1 | .2280 | 1-5/16 | 3-7/8 | 7.79 |
| 2 | .2210 | 1-5/16 | 3-7/8 | 7.79 |
| 5 | .2055 | 1-1/4 | 3-3/4 | 7.09 |
| 6 | .2040 | 1-1/4 | 3-3/4 | 7.29 |
| 9 | .1960 | 1-3/16 | 3-5/8 | 5.49 |
| 10 | .1935 | 1-3/16 | 3-5/8 | 5.29 |
| 11 | .1910 | 1-3/16 | 3-1/2 | 5.49 |

| Size | Dec. Equiv. | Flute Length | Overall Length | Price Each |
|------|-------------|--------------|----------------|------------|
| 13 | .1850 | 1-1/8 | 3-1/2 | 5.29 |
| 20 | .1610 | 1-1/16 | 3-1/4 | 4.09 |
| 21 | .1590 | 1-1/16 | 3-1/4 | 4.19 |
| 27 | .1440 | 1 | 3 | 3.79 |
| 30 | .1285 | 15/16 | 2-3/4 | 3.09 |
| 31 | .1200 | 7/8 | 2-3/4 | 3.19 |
| 32 | .1160 | 7/8 | 2-3/4 | 2.99 |

| Size | Dec. Equiv. | Flute Length | Overall Length | Price Each |
|------|-------------|--------------|----------------|------------|
| 39 | .0995 | 13/16 | 2-3/8 | 2.79 |
| 40 | .0980 | 13/16 | 2-3/8 | 2.59 |
| 46 | .0810 | 3/4 | 2-1/8 | 2.89 |
| 48 | .0760 | 11/16 | 2 | 2.89 |
| 49 | .0730 | 11/16 | 2 | 2.89 |
| 50 | .0700 | 11/16 | 2 | 2.69 |
| 55 | .0520 | 5/8 | 1-7/8 | 2.69 |

COMBINED DRILLS AND COUNTERSINKS



Combined drills and countersinks are used when locating an accurate center hole is required to assure the precision and quality of subsequent machining operations.

PLAIN TYPE — 60° COUNTERSINK ANGLE

- ▶ LIST NO. 585 — PREMIUM IMPORT
- LIST NO. 585U — MADE IN U.S.A
- LIST NO. 585TC — PREMIUM IMPORT TiN COATED
- LIST NO. 585UTC — MADE IN U.S.A TiN COATED

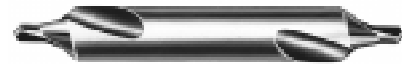
PLAIN TYPE — 82° COUNTERSINK ANGLE

- LIST NO. 582

PLAIN TYPE — 90° COUNTERSINK ANGLE

- LIST NO. 590

| Size | Body Diameter | Drill Dia. and Length | Overall Length | Package Quantity | Price Each | | | |
|-------|---------------|-----------------------|----------------|------------------|-----------------------------|---------------------------|--|--|
| | | | | | Premium Import List No. 585 | Made in USA List No. 585U | Premium Import TiN Coated List No. 585TC | Made in USA TiN Coated List No. 585UTC |
| 000 | 1/8 | .020 | 1-1/4 | 12 | 6.69 | 8.77 | 7.79 | 9.87 |
| 00 | 1/8 | .025 | 1-1/4 | 12 | 6.69 | 8.77 | 7.79 | 9.87 |
| 0 | 1/8 | 1/32 | 1-1/4 | 12 | 6.69 | 8.77 | 7.79 | 9.87 |
| 1 | 1/8 | 3/64 | 1-1/4 | 12 | 5.61 | 6.11 | 7.79 | 7.21 |
| 2 | 3/16 | 5/64 | 1-7/8 | 12 | 5.61 | 6.41 | 7.79 | 7.51 |
| 3 | 1/4 | 7/64 | 2 | 12 | 5.67 | 6.66 | 7.87 | 8.80 |
| 4 | 5/16 | 1/8 | 2-1/8 | 12 | 5.83 | 6.86 | 8.03 | 9.06 |
| 4-1/2 | 3/8 | 9/64 | 2-1/2 | 6 | 7.70 | 9.46 | 9.90 | 11.66 |
| 5 | 7/16 | 3/16 | 2-3/4 | 6 | 8.69 | 10.87 | 11.46 | 13.64 |
| 6 | 1/2 | 7/32 | 3 | 6 | 13.06 | 16.38 | 15.83 | 19.15 |
| 7 | 5/8 | 1/4 | 3-1/4 | 1 | 18.94 | 23.68 | 23.65 | 28.39 |
| 8 | 3/4 | 5/16 | 3-1/2 | 1 | 26.37 | 32.68 | 34.16 | 40.47 |
| 9 | 7/8 | 11/32 | 3-5/8 | 1 | 49.50 | 61.89 | 58.68 | 71.07 |
| 10 | 1 | 3/8 | 3-3/4 | 1 | 64.69 | 81.23 | 75.29 | 91.83 |



| Size | Price Each | |
|------|------------------|------------------|
| | 82° List No. 582 | 90° List No. 590 |
| 1 | 10.20 | 10.20 |
| 2 | 10.45 | 10.45 |
| 3 | 10.80 | 10.80 |
| 4 | 11.25 | 11.25 |
| 5 | 17.15 | 17.15 |
| 6 | 25.90 | 25.90 |
| 7 | 35.50 | 35.50 |
| 8 | 50.25 | 50.25 |

LONG SERIES — 60° COUNTERSINK ANGLE

- ▶ LIST NO. 589 — PREMIUM IMPORT
- LIST NO. 589U — MADE IN U.S.A

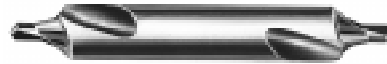


Long Combined Drills and Countersinks are used for producing center holes where the extra length is required to access difficult to reach areas.

| Size | Body Dia. | Drill Dia. | Overall Length | Price Each | |
|-------|-----------|------------|----------------|-----------------------------|---------------------------|
| | | | | Premium Import List No. 589 | Made in USA List No. 589U |
| 1 | 1/8 | 3/64 | 3 | 20.27 | 25.33 |
| 1 | 1/8 | 3/64 | 4 | 21.17 | 26.46 |
| 1 | 1/8 | 3/64 | 5 | 28.50 | 35.62 |
| 1 | 1/8 | 3/64 | 6 | 38.10 | 47.62 |
| 2 | 3/16 | 5/64 | 4 | 23.26 | 29.07 |
| 2 | 3/16 | 5/64 | 5 | 29.52 | 36.90 |
| 2 | 3/16 | 5/64 | 6 | 38.10 | 47.62 |
| 3 | 1/4 | 7/64 | 4 | 24.45 | 30.56 |
| 3 | 1/4 | 7/64 | 5 | 32.20 | 40.25 |
| 3 | 1/4 | 7/64 | 6 | 38.10 | 47.62 |
| 4 | 5/16 | 1/8 | 4 | 26.81 | 33.51 |
| 4 | 5/16 | 1/8 | 5 | 34.33 | 42.91 |
| 4 | 5/16 | 1/8 | 6 | 39.69 | 49.61 |
| 4-1/2 | 3/8 | 9/64 | 4 | 30.10 | 37.62 |
| 4-1/2 | 3/8 | 9/64 | 5 | 36.80 | 46.00 |
| 4-1/2 | 3/8 | 9/64 | 6 | 42.05 | 52.56 |
| 5 | 7/16 | 3/16 | 4 | 34.50 | 43.12 |
| 5 | 7/16 | 3/16 | 5 | 39.36 | 49.20 |
| 5 | 7/16 | 3/16 | 6 | 44.15 | 55.18 |
| 6 | 1/2 | 7/32 | 5 | 41.45 | 51.81 |
| 6 | 1/2 | 7/32 | 6 | 50.08 | 62.60 |
| 6 | 1/2 | 7/32 | 7 | 56.59 | 67.91 |
| 7 | 5/8 | 1/4 | 6 | 92.48 | 115.60 |
| 8 | 3/4 | 5/16 | 6 | 100.88 | 126.10 |

BELL TYPE — 60° COUNTERSINK ANGLE

- ▶ LIST NO. 587



| Size | Body Dia. | Drill Dia. and Length | Overall Length | Bell Dia. | Pkg. Qty. | Price Each |
|------|-----------|-----------------------|----------------|-----------|-----------|------------|
| 11 | 1/8 | 3/64 | 1-1/4 | .1000 | 12 | 8.50 |
| 12 | 3/16 | 1/16 | 1-7/8 | .1500 | 12 | 8.50 |
| 13 | 1/4 | 3/32 | 2 | .2000 | 12 | 8.90 |
| 14 | 5/16 | 7/64 | 2-1/8 | .2500 | 12 | 8.90 |
| 15 | 7/16 | 5/32 | 2-3/4 | .3500 | 12 | 14.50 |
| 16 | 1/2 | 3/16 | 3 | .4000 | 6 | 19.50 |
| 17 | 5/8 | 7/32 | 3-1/4 | .5000 | 1 | 27.50 |
| 18 | 3/4 | 1/4 | 3-1/2 | .6000 | 1 | 38.00 |

METRIC SERIES — 60° COUNTERSINK ANGLE

- LIST NO. 585M



| Size mm | Body Diameter | Drill Dia. and Length | Overall Length | Price Each |
|---------|---------------|-----------------------|----------------|------------|
| 1.00 | 1/8 | .0394 | 1-1/4 | 10.00 |
| 1.25 | 1/8 | .0492 | 1-1/4 | 10.00 |
| 1.60 | 5/32 | .0630 | 1-5/16 | 9.50 |
| 2.00 | .1969 | .0787 | 1-9/16 | 10.60 |
| 2.50 | 1/4 | .0984 | 1-3/4 | 12.00 |
| 3.15 | .3150 | .1240 | 2 | 14.70 |
| 4.00 | .3937 | .1575 | 2-1/4 | 25.10 |
| 5.00 | .4921 | .1969 | 2-1/2 | 34.70 |
| 6.30 | .6299 | .2480 | 2-3/4 | 50.80 |
| 8.00 | .7874 | .3150 | 3-1/8 | 79.00 |

COBALT COMBINED DRILLS AND COUNTERSINKS



PLAIN TYPE - 60° COUNTERSINK ANGLE

- LIST NO. 585C — COBALT PREMIUM IMPORT
- LIST NO. 585CU — COBALT MADE IN U.S.A.



| Size | Body Diameter | Drill Dia. and Length | Overall Length | Package Quantity | Price Each | |
|-------|---------------|-----------------------|----------------|------------------|--------------------|------------------|
| | | | | | Cobalt Import 585C | Cobalt USA 585CU |
| 1 | 1/8 | 3/64 | 1-1/4 | 12 | 15.00 | 17.70 |
| 2 | 3/16 | 5/64 | 1-7/8 | 12 | 15.30 | 18.00 |
| 3 | 1/4 | 7/64 | 2 | 12 | 16.04 | 18.87 |
| 4 | 5/16 | 1/8 | 2-1/8 | 12 | 16.46 | 19.37 |
| 4-1/2 | 3/8 | 9/64 | 2-1/2 | 6 | 24.95 | 26.88 |
| 5 | 7/16 | 3/16 | 2-3/4 | 6 | 30.63 | 36.14 |
| 6 | 1/2 | 7/32 | 3 | 6 | 41.20 | 48.47 |
| 7 | 5/8 | 1/4 | 3-1/4 | 1 | 53.26 | 62.66 |
| 8 | 3/4 | 5/16 | 3-1/2 | 1 | 76.00 | 89.43 |

SOLID CARBIDE COMBINED DRILLS AND COUNTERSINKS

PLAIN TYPE - 60° COUNTERSINK ANGLE

- LIST NO. 585SC — SOLID CARBIDE



| Size | Body Diameter | Drill Dia. and Length | Overall Length | Price Each |
|------|---------------|-----------------------|----------------|------------|
| 0 | 1/8 | 1/32 | 1-1/4 | 24.50 |
| 1 | 1/8 | 3/64 | 1-1/4 | 21.00 |
| 2 | 3/16 | 5/64 | 1-7/8 | 32.89 |
| 3 | 1/4 | 7/64 | 2 | 39.19 |
| 4 | 5/16 | 1/8 | 2-1/8 | 53.80 |
| 5 | 7/16 | 3/16 | 2-3/4 | 81.59 |
| 6 | 1/2 | 7/32 | 3 | 118.59 |

CARBIDE TIPPED COMBINED DRILLS AND COUNTERSINKS

60° COUNTERSINK ANGLE

- LIST NO. CT870 — 120° POINT



These drills are used for center drilling hardened high speed steel in the range up to 65R.

| Size | Body Diameter | Drill Diameter | Overall Length | Price Each |
|------|---------------|----------------|----------------|------------|
| 4-1 | 5/16 | 3/32 | 2-1/8 | 60.02 |
| 4-2 | 5/16 | 1/8 | 2-1/8 | 60.02 |
| 6-1 | 1/2 | 7/32 | 3 | 76.66 |
| 6-2 | 1/2 | 9/32 | 3 | 76.66 |

SETS



| Set No. | Set Description | Pieces per Set | Set Type | Set Price |
|---|-------------------------|----------------|----------------------------------|-----------|
| ▶ HIGH SPEED STEEL | | | | |
| 585P5 | No. 1-5 Premium Import | 5 | High Speed Steel Plain Type, 60° | 30.40 |
| 585P8 | No. 1-8 Premium Import | 8 | High Speed Steel Plain Type, 60° | 88.78 |
| 587B | No. 11-15 Bell | 5 | High Speed Steel Bell Type | 42.47 |
| ● COBALT, USA SOLID CARBIDE, HIGH SPEED STEEL | | | | |
| 585UP5 | No. 1-5 Made in USA | 5 | High Speed Steel Plain Type, 60° | 35.90 |
| 585PTIN | No. 1-5 Titanium Coated | 5 | High Speed Steel Plain Type, 60° | 41.94 |
| 585CP | No. 1-5 Premium Import | 5 | Cobalt | 93.43 |
| 585CUP | No. 1-5 Made in USA | 5 | Cobalt | 110.00 |
| 585UP8 | No. 1-8 Made in USA | 8 | High Speed Steel Plain Type, 60° | 108.65 |
| 585SC5 | No. 1-5 Solid Carbide | 5 | Solid Carbide | 228.00 |



NC/CNC SPOTTING DRILLS

STANDARD LENGTH

90° POINT

- ▶ LIST NO. 309 — HIGH SPEED
- LIST NO. 309C — COBALT
- LIST NO. 309T — TIN COATED

120° POINT

- ▶ LIST NO. 310 — HIGH SPEED
- LIST NO. 310C — COBALT
- LIST NO. 310T — TIN COATED

82° POINT

- ▶ LIST NO. 311 — HIGH SPEED
- LIST NO. 311C — COBALT
- LIST NO. 311T — TIN COATED



These drills are used for perfect alignment of the follow-on tool.

| Size | Dec. Equiv. | Overall Length | Flute Length | Price Each | | | Price Each | | | Price Each | | |
|------|-------------|----------------|--------------|-------------------|----------------------|-------------------------------|-------------------|----------------------|-------------------------------|-------------------|----------------------|-------------------------------|
| | | | | 90° POINT | | | 120° POINT | | | 82° POINT | | |
| | | | | H.S. List No. 309 | Cobalt List No. 309C | H.S. TiN Coated List No. 309T | H.S. List No. 310 | Cobalt List No. 310C | H.S. TiN Coated List No. 310T | H.S. List No. 311 | Cobalt List No. 311C | H.S. TiN Coated List No. 311T |
| 1/8 | .1250 | 1-7/8 | 1/2 | 18.45 | 35.10 | 26.75 | 19.20 | 35.85 | 27.84 | 19.20 | 35.85 | 27.84 |
| 5/32 | .1562 | 2-1/16 | 9/16 | 20.50 | 39.00 | 29.72 | 21.25 | 39.75 | 30.81 | 21.25 | 39.75 | 30.81 |
| 3/16 | .1875 | 2-3/16 | 9/16 | 21.80 | 42.00 | 31.61 | 22.40 | 42.60 | 32.48 | 22.40 | 42.60 | 32.48 |
| 1/4 | .2500 | 2-1/2 | 3/4 | 24.30 | 44.85 | 35.23 | 24.80 | 45.75 | 35.96 | 24.80 | 45.75 | 35.96 |
| 3/8 | .3750 | 3-1/8 | 1-1/8 | 26.15 | 48.35 | 37.91 | 26.70 | 49.25 | 38.71 | 26.70 | 49.25 | 38.71 |
| 1/2 | .5000 | 3-3/4 | 1-3/8 | 33.46 | 61.95 | 48.51 | 34.20 | 63.15 | 49.59 | 34.20 | 63.15 | 49.59 |
| 5/8 | .6250 | 4-3/8 | 1-5/8 | 44.25 | 81.90 | 64.16 | 44.30 | 81.90 | 64.23 | 44.30 | 81.90 | 64.23 |
| 3/4 | .7500 | 5 | 1-7/8 | 55.86 | 103.30 | 80.99 | 56.95 | 105.35 | 82.57 | 56.95 | 105.35 | 82.57 |
| 1 | 1.0000 | 6 | 2-1/4 | 94.30 | 174.40 | 136.73 | 96.20 | 177.85 | 139.49 | 96.20 | 177.85 | 139.49 |

SETS

The following sets are all made of these sizes supplied in a wood case.
1/4, 3/8, 1/2, 5/8, 3/4, 1

H.S.—90° POINT

SET NO. 309S
SET PRICE — \$289.00

Cobalt—90° POINT

SET NO. 309CS
SET PRICE — \$519.00

H.S.—120° POINT

SET NO. 310S
SET PRICE — \$299.00

Cobalt—120° POINT

SET NO. 310CS
SET PRICE — \$539.00

H.S.—82° POINT

SET NO. 311S
SET PRICE — \$299.00

Cobalt—82° POINT

SET NO. 311CS
SET PRICE — \$539.00

LONG LENGTH

90° POINT

- ▶ LIST NO. 309L — HIGH SPEED
- LIST NO. 309LT — TIN COATED

120° POINT

- ▶ LIST NO. 310L — HIGH SPEED
- LIST NO. 310LT — TIN COATED



H.S.—90° POINT

6 Piece Set
Contains 1 piece of each:
1/4, 3/8, 1/2, 5/8, 3/4, 1
Supplied in wood block.

SET NO. 309LS
SET PRICE — \$359.00

| Size | Dec. Equiv. | Overall Length | Flute Length | Price Each | |
|------|-------------|----------------|--------------|--------------------|--------------------------------|
| | | | | 90° POINT | |
| | | | | H.S. List No. 309L | H.S. TiN Coated List No. 309LT |
| 1/4 | .2500 | 4 | 3/4 | 35.50 | 51.47 |
| 3/8 | .3750 | 5 | 1-1/8 | 37.25 | 54.01 |
| 1/2 | .5000 | 6 | 1-3/8 | 46.50 | 67.42 |
| 5/8 | .6250 | 7 | 1-5/8 | 59.50 | 86.27 |
| 3/4 | .7500 | 8 | 1-7/8 | 79.90 | 115.85 |
| 1 | 1.0000 | 8 | 2-1/4 | 101.75 | 147.53 |

| Size | Dec. Equiv. | Overall Length | Flute Length | Price Each | |
|------|-------------|----------------|--------------|--------------------|--------------------------------|
| | | | | 120° POINT | |
| | | | | H.S. List No. 310L | H.S. TiN Coated List No. 310LT |
| 1/4 | .2500 | 4 | 3/4 | 36.25 | 52.56 |
| 3/8 | .3750 | 5 | 1-1/8 | 38.10 | 55.24 |
| 1/2 | .5000 | 6 | 1-3/8 | 47.60 | 69.02 |
| 5/8 | .6250 | 7 | 1-5/8 | 61.10 | 88.59 |
| 3/4 | .7500 | 8 | 1-7/8 | 81.50 | 118.17 |
| 1 | 1.0000 | 8 | 2-1/4 | 103.80 | 150.51 |

H.S.—120° POINT

6 Piece Set
Contains 1 piece of each:
1/4, 3/8, 1/2, 5/8, 3/4, 1
Supplied in wood block.

SET NO. 310LS
SET PRICE — \$369.00

EXTRA LENGTH

90° POINT

- ▶ LIST NO. 309XL — HIGH SPEED
- LIST NO. 309XLT — TIN COATED

120° POINT

- ▶ LIST NO. 310XL — HIGH SPEED
- LIST NO. 310XLT — TIN COATED



H.S.—90° POINT

6 Piece Set
Contains 1 piece of each:
1/4, 3/8, 1/2, 5/8, 3/4, 1
Supplied in wood block.

SET NO. 309XLS
SET PRICE — \$489.00

| Size | Dec. Equiv. | Overall Length | Flute Length | Price Each | |
|------|-------------|----------------|--------------|---------------------|---------------------------------|
| | | | | 90° POINT | |
| | | | | H.S. List No. 309XL | H.S. TiN Coated List No. 309XLT |
| 1/4 | .2500 | 6 | 3/4 | 49.50 | 71.77 |
| 3/8 | .3750 | 7 | 1-1/8 | 52.15 | 75.61 |
| 1/2 | .5000 | 8 | 1-3/8 | 63.29 | 91.77 |
| 5/8 | .6250 | 9 | 1-5/8 | 82.85 | 120.13 |
| 3/4 | .7500 | 10 | 1-7/8 | 107.90 | 156.45 |
| 1 | 1.0000 | 10 | 2-1/4 | 132.10 | 191.54 |

| Size | Dec. Equiv. | Overall Length | Flute Length | Price Each | |
|------|-------------|----------------|--------------|---------------------|---------------------------------|
| | | | | 120° POINT | |
| | | | | H.S. List No. 310XL | H.S. TiN Coated List No. 310XLT |
| 1/4 | .2500 | 6 | 3/4 | 51.15 | 74.16 |
| 3/8 | .3750 | 7 | 1-1/8 | 53.25 | 77.21 |
| 1/2 | .5000 | 8 | 1-3/8 | 64.70 | 93.81 |
| 5/8 | .6250 | 9 | 1-5/8 | 83.15 | 120.56 |
| 3/4 | .7500 | 10 | 1-7/8 | 110.10 | 159.64 |
| 1 | 1.0000 | 10 | 2-1/4 | 135.20 | 196.04 |

H.S.—120° POINT

6 Piece Set
Contains 1 piece of each:
1/4, 3/8, 1/2, 5/8, 3/4, 1
Supplied in wood block.

SET NO. 310XLS
SET PRICE — \$499.00



NC/CNC SPOTTING METRIC DRILLS

STANDARD LENGTH

90° POINT

- LIST NO. 309 — HIGH SPEED
- LIST NO. 309C — COBALT
- LIST NO. 309T — TiN COATED

120° POINT

- LIST NO. 310 — HIGH SPEED
- LIST NO. 310C — COBALT
- LIST NO. 310T — TiN COATED



These drills are used for perfect alignment of the follow-on tool.

| Size mm | Dec. Equiv. | Overall Length | Flute Length | Price Each | | | Price Each | | |
|---------|-------------|----------------|--------------|-------------------|----------------------|-------------------------------|-------------------|----------------------|-------------------------------|
| | | | | 90° POINT | | | 120° POINT | | |
| | | | | H.S. List No. 309 | Cobalt List No. 309C | H.S. TiN Coated List No. 309T | H.S. List No. 310 | Cobalt List No. 310C | H.S. TiN Coated List No. 310T |
| 4.00 | .1575 | 2-1/16 | 15/32 | 21.00 | 40.10 | 30.45 | 21.84 | 41.30 | 31.66 |
| 6.00 | .2362 | 2-19/32 | 5/8 | 23.00 | 43.05 | 33.35 | 23.92 | 44.34 | 34.68 |
| 8.00 | .3150 | 3-1/8 | 13/16 | 25.00 | 45.05 | 36.25 | 26.00 | 46.40 | 37.70 |
| 10.00 | .3937 | 3-1/2 | 1 | 31.00 | 59.15 | 44.95 | 32.24 | 60.92 | 46.74 |
| 12.00 | .4724 | 4 | 1-3/16 | 35.00 | 60.95 | 50.75 | 36.40 | 62.78 | 52.78 |
| 14.00 | .5512 | 4-1/2 | 1-3/8 | 39.00 | 76.95 | 56.55 | 40.56 | 79.26 | 58.81 |
| 16.00 | .6299 | 4-1/2 | 1-3/8 | 45.00 | 86.05 | 65.25 | 46.80 | 88.63 | 67.86 |
| 18.00 | .7087 | 5-1/8 | 1-1/2 | 52.00 | 101.95 | 75.40 | 54.08 | 105.00 | 78.41 |

| |
|---|
| 6 Piece Sets Sizes: 6, 8, 10, 12, 14, 16 Supplied in wood case |
| HIGH SPEED STEEL |
| SET NO. 309SM 90°PT SET PRICE — \$198.00 |
| SET NO. 310SM 120°PT SET PRICE — \$205.00 |
| COBALT |
| SET NO. 309CSM 90°PT SET PRICE — \$389.15 |
| SET NO. 310CSM 120°PT SET PRICE — \$400.28 |

SOLID CARBIDE NC SPOTTING DRILLS

- LIST NO. C809 — 90° POINT
- LIST NO. C810 — 120° POINT



Designed for fast and accurate spotting on NC machines. These drills are very rigid allowing higher speeds and feeds.

| Size | Dec. Equiv. | Flute Length | Overall Length | Price Each | |
|------|-------------|--------------|----------------|-------------------|--------------------|
| | | | | 90° List No. C809 | 120° List No. C810 |
| 1/8 | .1250 | 3/8 | 1-1/2 | 18.95 | 18.95 |
| 3/16 | .1875 | 1/2 | 2 | 24.50 | 24.50 |
| 1/4 | .2500 | 5/8 | 2 | 32.50 | 32.50 |
| 3/8 | .3750 | 1 | 2 | 59.00 | 59.00 |
| 1/2 | .5000 | 1 | 2 | 88.90 | 88.90 |
| 3/4 | .7500 | 1-1/4 | 2-5/8 | 235.60 | 235.60 |

HIGH SPEED STEEL

CENTER DRILLS

- ▶ LIST NO. 580 — 118° POINT



These drills are used for starting and centering screw machine operations. Their short flute and overall length increase rigidity while minimizing runout.

| Size | Dec. Equiv. | Flute Length | Overall Length | Price Each | Size | Dec. Equiv. | Flute Length | Overall Length | Price Each |
|-------|-------------|--------------|----------------|------------|-------|-------------|--------------|----------------|------------|
| #56 | .0465 | 3/8 | 1-3/16 | 2.70 | #20 | .1610 | 1 | 1-1/2 | 4.35 |
| 1/16* | .0625 | 3/8 | 1-3/16 | 2.70 | 11/64 | .1719 | 1 | 1-1/2 | 4.35 |
| 5/64 | .0781 | 3/4 | 1-1/4 | 2.70 | 3/16 | .1875 | 1 | 1-1/2 | 4.35 |
| 3/32 | .0938 | 3/4 | 1-1/4 | 2.95 | 13/64 | .2031 | 1 | 1-1/2 | 4.35 |
| #40 | .0980 | 3/4 | 1-1/4 | 2.95 | #5 | .2055 | 1 | 1-1/2 | 4.35 |
| 7/64 | .1094 | 3/4 | 1-1/4 | 2.95 | 7/32 | .2188 | 1 | 1-1/2 | 4.35 |
| 1/8 | .1250 | 3/4 | 1-1/4 | 2.50 | 1/4 | .2500 | 1 | 1-1/2 | 4.85 |
| #30 | .1285 | 3/4 | 1-1/4 | 2.60 | 9/32 | .2812 | 1 | 1-1/2 | 6.75 |
| 9/64 | .1406 | 3/4 | 1-1/4 | 3.90 | 5/16 | .3125 | 1 | 1-1/2 | 8.00 |
| 5/32 | .1562 | 1 | 1-1/2 | 4.35 | 29/64 | .4531 | 1 | 1-1/2 | 12.90 |

*This size available in Cobalt, Price Each \$4.86

HIGH SPEED STEEL

SPOTTING AND CENTERING DRILLS

- LIST NO. 302 — RIGHT HAND, 118° POINT
- LIST NO. 302LH — LEFT HAND, 118° POINT



These drills are used for starting and centering screw machine operations. Their short flute and overall length increase rigidity while minimizing runout. To provide greater rigidity, these drills are made with short overall and flute lengths.

| Size | Dec. Equiv. | Flute Length | Overall Length | Price Each | |
|------|-------------|--------------|----------------|-------------------------|--------------------------|
| | | | | Right Hand List No. 302 | Left Hand List No. 302LH |
| 3/8 | .3750 | 1 | 2 | 9.80 | 14.50 |
| 7/16 | .4375 | 1 | 2 | 16.00 | 19.70 |
| 1/2 | .5000 | 1 | 2 | 17.20 | 21.15 |
| 5/8 | .6250 | 1-1/8 | 2-1/4 | 27.30 | 33.00 |
| 3/4 | .7500 | 1-1/8 | 2-1/4 | 38.90 | 46.00 |
| 7/8 | .8750 | 1-1/4 | 2-1/2 | 55.90 | 65.00 |

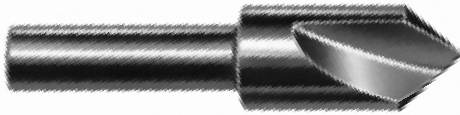
| Size | Dec. Equiv. | Flute Length | Overall Length | Price Each | |
|-------|-------------|--------------|----------------|-------------------------|--------------------------|
| | | | | Right Hand List No. 302 | Left Hand List No. 302LH |
| 1 | 1.0000 | 1-1/4 | 2-1/2 | 62.80 | 69.75 |
| 1-1/4 | 1.2500 | 2 | 4 | 125.00 | — |
| 1-1/2 | 1.5000 | 2-1/2 | 5 | 195.00 | — |
| 1-3/4 | 1.7500 | 2-3/4 | 5-1/2 | 295.00 | — |
| 2 | 2.0000 | 3-3/4 | 6 | 350.00 | — |



HIGH SPEED STEEL

SINGLE-FLUTE COUNTERSINKS

- ▶ LIST NO. 490 — 60° POINT ANGLE
- ▶ LIST NO. 491 — 82° POINT ANGLE
- ▶ LIST NO. 492 — 90° POINT ANGLE
- ▶ LIST NO. 493 — 100° POINT ANGLE



For use in chamfering, deburring, countersinking and enlarging holes in sheet metal while providing a smooth surface finish. They will countersink holes much smaller than other styles and should be operated at comparatively high speeds.

| SINGLE TOOLS | | | | | | | |
|--------------|------------|----------------|------------|-------|------------|----------------|------------|
| Size | Shank Dia. | Overall Length | Price Each | Size | Shank Dia. | Overall Length | Price Each |
| 1/8 | 1/8 | 1-1/4 | 10.92 | 3/4 | 1/2 | 2-5/8 | 39.20 |
| 3/16 | 3/16 | 1-1/2 | 11.96 | 7/8 | 1/2 | 2-3/4 | 53.00 |
| 1/4 | 1/4 | 1-1/2 | 14.50 | 1 | 1/2 | 2-3/4 | 67.00 |
| 5/16 | 1/4 | 1-5/8 | 15.50 | 1-1/4 | 1/2 | 2-3/4 | 111.97 |
| 3/8 | 1/4 | 1-3/4 | 16.50 | 1-1/2 | 3/4 | 2-7/8 | 139.61 |
| 1/2 | 1/4 | 2 | 21.20 | 1-3/4 | 3/4 | 3 | 197.50 |
| 5/8 | 3/8 | 2-1/4 | 29.15 | 2 | 3/4 | 3-1/4 | 227.17 |

SETS

5 PIECE SETS
 Contains 1 Piece of Each:
 1/4, 3/8, 1/2, 5/8, 3/4
 60° – SET NO. 490S5
 82° – SET NO. 491S5
 90° – SET NO. 492S5
 100° – SET NO. 493S5
 Supplied in Wood Block
SET PRICE - \$120.50

SETS

9 PIECE SETS
 Contains 1 Piece of Each:
 1/4, 3/8, 1/2, 5/8, 3/4
 1, 1-1/4, 1-1/2, 2
 60° – SET NO. 490S9
 82° – SET NO. 491S9
 90° – SET NO. 492S9
 100° – SET NO. 493S9
 Supplied in Wood Block
SET PRICE - \$667.00

SETS

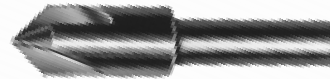
12 PIECE SETS
 Contains 1 Piece of Each:
 3/16, 1/4, 5/16, 3/8, 1/2, 5/8,
 3/4, 7/8, 1, 1-1/4, 1-1/2, 2
 60° – SET NO. 490S12
 82° – SET NO. 491S12
 90° – SET NO. 492S12
 100° – SET NO. 493S12
 Supplied in Wood Block
SET PRICE - \$746.50

HIGH SPEED STEEL

THREE-FLUTE COUNTERSINK CENTER REAMERS

- ▶ LIST NO. 480 — 60° POINT ANGLE
- ▶ LIST NO. 481 — 82° POINT ANGLE
- ▶ LIST NO. 482 — 90° POINT ANGLE
- ▶ LIST NO. 483 — 100° POINT ANGLE*
- ▶ LIST NO. 484 — 120° POINT ANGLE*

* 1/4-1" ONLY



Engineered to give chatter-free performance. They are comparatively free-cutting and should be operated at low speeds.

SETS

5 PIECE SETS
 Contains 1 Piece of Each:
 1/4, 3/8, 1/2, 5/8, 3/4
 60° – SET NO. 480S5
 82° – SET NO. 481S5
 90° – SET NO. 482S5
 Supplied in Wood Block
SET PRICE - \$97.20

SETS

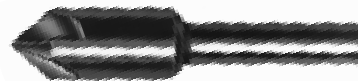
9 PIECE SETS
 Contains 1 Piece of Each:
 1/4, 3/8, 1/2, 5/8, 3/4
 1, 1-1/4, 1-1/2, 2
 60° – SET NO. 480S9
 82° – SET NO. 481S9
 90° – SET NO. 482S9
 Supplied in Wood Block
SET PRICE - \$545.10

| SINGLE TOOLS | | | | | | | |
|--------------|------------|----------------|------------|-------|------------|----------------|------------|
| Size | Shank Dia. | Overall Length | Price Each | Size | Shank Dia. | Overall Length | Price Each |
| 1/4 | 3/16 | 1-1/2 | 11.00 | 1 | 1/2 | 2-3/4 | 51.68 |
| 3/8 | 1/4 | 1-3/4 | 13.10 | 1-1/4 | 1/2 | 3 | 86.65 |
| 1/2 | 3/8 | 2 | 16.50 | 1-1/2 | 3/4 | 3 | 111.80 |
| 5/8 | 3/8 | 2-1/4 | 24.50 | 2 | 3/4 | 3-1/4 | 197.60 |
| 3/4 | 1/2 | 2-5/8 | 32.10 | | | | |

HIGH SPEED STEEL

FOUR-FLUTE MACHINE COUNTERSINKS

- ▶ LIST NO. 486 — 60° POINT ANGLE
- ▶ LIST NO. 487 — 82° POINT ANGLE



Four flute countersinks allow for greater chip removal.

SETS

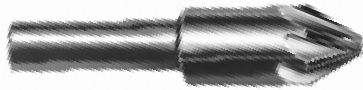
5 PIECE SETS
 Contains 1 Piece of Each:
 1/2, 5/8, 3/4, 7/8, 1
 60° – SET NO. 486S5
 82° – SET NO. 487S5
 Supplied in Wood Block
SET PRICE - \$252.35

| SINGLE TOOLS | | | | | | | |
|--------------|------------|----------------|------------|-------|------------|----------------|------------|
| Size | Shank Dia. | Overall Length | Price Each | Size | Shank Dia. | Overall Length | Price Each |
| 1/2 | 1/2 | 3-7/8 | 35.50 | 1 | 1/2 | 4-1/4 | 64.50 |
| 5/8 | 1/2 | 4 | 41.25 | 1-1/4 | 1/2 | 4-3/8 | 85.60 |
| 3/4 | 1/2 | 4-1/8 | 52.80 | 1-1/2 | 1/2 | 4-1/2 | 113.75 |
| 7/8 | 1/2 | 4-1/4 | 58.30 | | | | |



SIX-FLUTE CHATTERLESS COUNTERSINKS

- ▶ LIST NO. 495 — 60° POINT ANGLE
- ▶ LIST NO. 496 — 82° POINT ANGLE
- ▶ LIST NO. 497 — 90° POINT ANGLE
- ▶ LIST NO. 498 — 100° POINT ANGLE



Designed for fast shearing cut.



| SINGLE TOOLS | | | | | | | |
|--------------|------------|----------------|------------|-------|------------|----------------|------------|
| Size | Shank Dia. | Overall Length | Price Each | Size | Shank Dia. | Overall Length | Price Each |
| 1/4 | 1/4 | 2 | 12.38 | 1 | 1/2 | 2-3/4 | 63.20 |
| 5/16 | 1/4 | 2 | 14.75 | 1-1/4 | 3/4 | 3-3/8 | 102.95 |
| 3/8 | 1/4 | 2 | 16.81 | 1-1/2 | 3/4 | 3-1/2 | 152.50 |
| 1/2 | 1/4 | 2 | 21.00 | 1-3/4 | 1 | 4-1/4 | 191.25 |
| 5/8 | 1/2 | 2-3/4 | 30.50 | 2 | 1 | 4-3/8 | 229.25 |
| 3/4 | 1/2 | 2-3/4 | 43.50 | 2-1/2 | 1 | 5 | 275.10 |
| 7/8 | 1/2 | 2-3/4 | 52.50 | 3 | 1 | 5-1/4 | 330.12 |

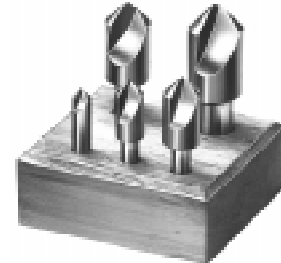
| SETS |
|--|
| 5 PIECE SETS Contains 1 Piece of Each: 1/4, 3/8, 1/2, 5/8, 3/4 60° – SET NO. 495S5 82° – SET NO. 496S5 90° – SET NO. 497S5 100° – SET NO. 498S5 Supplied in Wood Block SET PRICE - \$125.00 |

| SETS |
|--|
| 8 PIECE SETS Contains 1 Piece of Each: 1/4, 5/16, 3/8, 1/2, 5/8, 3/4, 7/8, 1 60° – SET NO. 495S8 82° – SET NO. 496S8 90° – SET NO. 497S8 100° – SET NO. 498S8 Supplied in Wood Block SET PRICE - \$255.00 |

COBALT SINGLE-FLUTE COUNTERSINKS



- LIST NO. 491C — 82° POINT ANGLE



| SINGLE TOOLS | | | | | | | |
|--------------|------------|----------------|------------|-------|------------|----------------|------------|
| Size | Shank Dia. | Overall Length | Price Each | Size | Shank Dia. | Overall Length | Price Each |
| 1/8 | 1/8 | 1-1/4 | 19.66 | 3/4 | 1/2 | 2-5/8 | 70.56 |
| 3/16 | 3/16 | 1-1/2 | 21.53 | 7/8 | 1/2 | 2-3/4 | 95.40 |
| 1/4 | 1/4 | 1-1/2 | 26.80 | 1 | 1/2 | 2-3/4 | 120.60 |
| 5/16 | 1/4 | 1-5/8 | 27.90 | 1-1/4 | 1/2 | 2-3/4 | 201.55 |
| 3/8 | 1/4 | 1-3/4 | 29.70 | 1-1/2 | 3/4 | 2-7/8 | 251.30 |
| 1/2 | 1/4 | 2 | 38.16 | 1-3/4 | 3/4 | 3 | 355.50 |
| 5/8 | 3/8 | 2-1/4 | 52.97 | 2 | 3/4 | 3-1/4 | 408.91 |

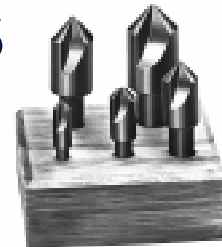
| SETS |
|--|
| 82° — SET NO. 491CS5 5 PIECE SETS Contains 1 Piece of Each: 1/4, 3/8, 1/2, 5/8, 3/4 Supplied in Wood Block SET PRICE - \$217.00 |

| SETS |
|---|
| 82° — SET NO. 491CS9 9 PIECE SETS Contains 1 Piece of Each: 1/4, 3/8, 1/2, 5/8, 3/4 1, 1-1/4, 1-1/2, 2 Supplied in Wood Block SET PRICE - \$1200.00 |

COBALT THREE-FLUTE CENTER REAMERS



- LIST NO. 481C — 82° POINT ANGLE



| SINGLE TOOLS | | | | | | | |
|--------------|------------|----------------|------------|-------|------------|----------------|------------|
| Size | Shank Dia. | Overall Length | Price Each | Size | Shank Dia. | Overall Length | Price Each |
| 1/4 | 3/16 | 1-1/2 | 19.80 | 1 | 1/2 | 2-3/4 | 93.02 |
| 3/8 | 1/4 | 1-3/4 | 23.58 | 1-1/4 | 1/2 | 3 | 155.97 |
| 1/2 | 3/8 | 2 | 29.70 | 1-1/2 | 3/4 | 3 | 201.24 |
| 5/8 | 3/8 | 2-1/4 | 44.10 | 2 | 3/4 | 3-1/4 | 355.68 |
| 3/4 | 1/2 | 2-5/8 | 57.78 | | | | |

| SETS |
|--|
| 82° — SET NO. 481CS5 5 PIECE SETS Contains 1 Piece of Each: 1/4, 3/8, 1/2, 5/8, 3/4 Supplied in Wood Block SET PRICE - \$175.00 |

| SETS |
|--|
| 82° — SET NO. 481CS9 9 PIECE SETS Contains 1 Piece of Each: 1/4, 3/8, 1/2, 5/8, 3/4 1, 1-1/4, 1-1/2, 2 Supplied in Wood Block SET PRICE - \$980.91 |



HIGH SPEED STEEL AND COBALT

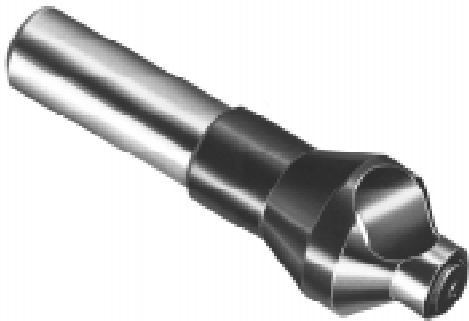
COUNTERSINK AND DEBURRING TOOL

PILOTED AND PILOTLESS TYPES

MADE IN U.S.A.



The action of a single cutting edge provides faster stock removal and prevents chatter. These tools are recommended for deburring steel and other ferrous materials. They can easily be resharpened by using an axial relieving fixture or by using a small mounted grinding wheel and inserting it in the hole.



SINGLE TOOLS - PILOTLESS TYPE

| Size | Single or Double End | Range of Hole Diameter Which Can Be Cut | | Shank Dia. | Price Each | |
|---------------------------------------|----------------------|---|--------------|------------|------------|-------------|
| | | Smallest Dia. | Largest Dia. | | H.S. | Cobalt |
| LIST NO. 543 — 60° HIGH SPEED | | | | | H.S. 543 | Cobalt |
| 00 | Double End | 3/32 | 11/64 | 3/16 | 9.32 | — |
| 0 | Double End | 1/8 | 15/64 | 1/4 | 9.32 | — |
| 1 | Single End | 3/16 | 13/32 | 1/4 | 10.10 | — |
| 2 | Single End | 5/16 | 17/32 | 1/4 | 12.50 | — |
| 3 | Single End | 7/16 | 25/32 | 1/2 | 21.65 | — |
| 3A | Single End | 7/16 | 25/32 | 1/4 | 21.65 | — |
| 4 | Single End | 11/16 | 1-3/32 | 1/2 | 34.25 | — |
| LIST NO. 544 — 82° HIGH SPEED | | | | | H.S. 544 | Cobalt 544C |
| LIST NO. 544C — 82° COBALT | | | | | | |
| 0 | Double End | 1/16 | 15/64 | 1/4 | 9.32 | 16.78 |
| 1 | Single End | 5/32 | 13/32 | 1/4 | 9.32 | 16.78 |
| 2 | Single End | 3/16 | 17/32 | 1/4 | 11.67 | 21.01 |
| 3 | Single End | 5/16 | 25/32 | 1/2 | 20.24 | 36.43 |
| 3A | Single End | 5/16 | 25/32 | 1/4 | 20.24 | 36.43 |
| 3B | Single End | 7/16 | 7/8 | 1/2 | 34.39 | — |
| 4 | Single End | 9/16 | 1-1/16 | 1/2 | 34.25 | 61.65 |
| 5 | Single End | 5/8 | 1-15/32 | 1/2 | 77.64 | 139.75 |
| 6 | Single End | 3/4 | 1-3/4 | 5/8 | 113.00 | — |
| 7 | Single End | 1 | 2 | 5/8 | 138.36 | — |
| 8 | Single End | 1-1/4 | 2-1/2 | 3/4 | 153.50 | — |
| LIST NO. 546 — 90° HIGH SPEED | | | | | H.S. 546 | Cobalt 546C |
| LIST NO. 546C — 90° COBALT | | | | | | |
| 00 | Double End | 1/32 | 11/64 | 3/16 | 9.32 | — |
| 0 | Double End | 1/16 | 15/64 | 1/4 | 9.32 | 16.78 |
| 1 | Single End | 5/32 | 13/32 | 1/4 | 9.32 | 16.78 |
| 2 | Single End | 3/16 | 17/32 | 1/4 | 11.67 | 21.01 |
| 3 | Single End | 5/16 | 25/32 | 1/2 | 20.24 | 36.43 |
| 3A | Single End | 5/16 | 25/32 | 1/4 | 20.24 | — |
| 4 | Single End | 9/16 | 1-1/16 | 1/2 | 34.25 | 61.65 |
| 5 | Single End | 5/8 | 1-15/32 | 1/2 | 77.64 | — |
| LIST NO. 547 — 100° HIGH SPEED | | | | | H.S. 547 | Cobalt |
| 0 | Double End | 1/16 | 15/64 | 1/4 | 9.32 | — |
| 1 | Single End | 5/32 | 13/32 | 1/4 | 10.10 | — |
| 2 | Single End | 3/16 | 17/32 | 1/4 | 12.50 | — |
| 3 | Single End | 5/16 | 25/32 | 1/2 | 21.65 | — |
| 4 | Single End | 9/16 | 1-1/16 | 1/2 | 35.85 | — |

SINGLE TOOLS - PILOTED TYPE

| Size | Screw Size | Range of Hole Diameter Which Can Be Cut | | Pilot Length | Shank Dia. | Price Each |
|----------------------------|------------|---|--------------|--------------|------------|------------|
| | | Smallest Dia.* | Largest Dia. | | | |
| LIST NO. 544P — 82° | | | | | | |
| 11 | 1/4 | 1/4 | 33/64 | 5/32 | 3/8 | 13.52 |
| 12 | 1/4 | 17/64 | 33/64 | 5/32 | 3/8 | 13.52 |
| 13 | 5/16 | 5/16 | 41/64 | 5/32 | 3/8 | 16.15 |
| 14 | 5/16 | 21/64 | 41/64 | 5/32 | 3/8 | 16.15 |
| 15 | 3/8 | 3/8 | 49/64 | 5/32 | 1/2 | 21.43 |
| 16 | 3/8 | 25/64 | 49/64 | 5/32 | 1/2 | 21.43 |
| 17 | 7/16 | 7/16 | 53/64 | 7/32 | 1/2 | 26.68 |
| 18 | 7/16 | 29/64 | 53/64 | 7/32 | 1/2 | 26.68 |
| 19 | 1/2 | 1/2 | 15/16 | 1/4 | 1/2 | 27.72 |
| 20 | 1/2 | 33/64 | 15/16 | 1/4 | 1/2 | 27.72 |

*Pilot Diameter

HIGH SPEED STEEL SETS

Pilotless Type (Pictured at Right)

5 Piece Set
Contains 1 Piece of Each:
#0, 1, 2, 3 and 4
60° SET NO. 543S — \$ 87.82
82° SET NO. 544S — \$ 84.80
90° SET NO. 546S — \$ 84.80
100° SET NO. 547S — \$ 89.42

SET NO. 544T
8 Piece Set - 82° Point Angle
Contains 1 Piece of Each:
0, 1, 2, 3, 4, 5, 6 and 7
SET PRICE — \$413.80

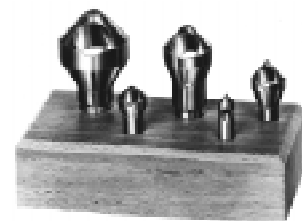
Piloted Type (Pictured at Right)

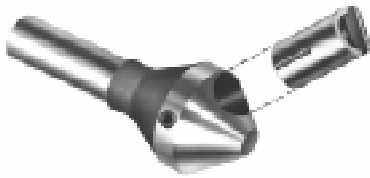
SET NO. 544PS
5 Piece Set - 82° Point Angle
Contains 1 Piece of Each:
#11, 13, 15, 17 and 19
SET PRICE — \$105.50

Sets supplied in wood block

COBALT SETS

5 Piece Set
Contains 1 Piece of Each:
#0, 1, 2, 3 and 4
Supplied in Wood Block
82° SET NO. 544CS — \$152.64
90° SET NO. 546CS — \$152.64





◆ DYNA-SINK

**HIGH SPEED STEEL AND CARBIDE INSERTED
COUNTERSINK AND DEBURRING TOOLS
82° AND 90°**

- Deburr and Countersink large diameter holes
- Use at high surface speeds
- Better finishes
- Quick and inexpensive
- Inserts need only be replaced after a large number of regrinds
- Regrind is quick and accurate

SINGLE TOOL

| Size No. | Range of Hole Diameter Which Can be Cut | | Shank Dia. | Tool No. | | Price Each |
|----------|---|--------|------------|----------|--------|------------|
| | Smallest Dia. to Largest Dia. | | | 82° | 90° | |
| 4 | 9/16 | 1-1/16 | 1/2 | 548-48 | 548-49 | 27.50 |
| 5 | 1 | 1-1/2 | 3/4 | 548-58 | 548-59 | 39.50 |
| 7 | 1-1/2 | 2 | 3/4 | 548-78 | 548-79 | 57.00 |

Inserts sold separately

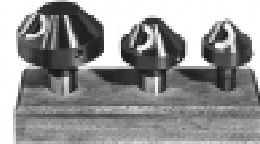
INSERTS

| High Speed Steel | | Carbide | |
|------------------|------------|------------|------------|
| Insert No. | Price Each | Insert No. | Price Each |
| 548HA4 | 25.87 | 548CA4 | 28.64 |
| 548HA5 | 25.87 | 548CA5 | 28.64 |
| 548HA7 | 25.87 | 548CA7 | 28.64 |

REPLACEMENT PARTS LIST

| Part No. | Description | Price Each |
|------------|-------------------------------|------------|
| SS1420-38 | Dyna-Sink Set Screw | .50 |
| SS51618-38 | Resharpener Fixture Set Screw | .35 |

SETS



3 PIECE SET

Contains 1 piece of each:
Size No. 4, 5, 7
Inserts included with each set
supplied in wood block

HIGH SPEED INSERTED SET

82° SET NO. 548SH8 — PRICE \$149.00
90° SET NO. 548SH9 — PRICE \$149.00

3 PIECE SET

Contains 1 piece of each:
Size No. 4, 5, 7
Inserts included with each set
supplied in wood block

CARBIDE INSERTED SET

82° SET NO. 548SC8 — PRICE \$152.00
90° SET NO. 548SC9 — PRICE \$152.00

DYNA-SINK RESHARPENING FIXTURE

For use in spin fixture
Tool No. 548R
PRICE EACH — \$33.93



MADE IN U.S.A. — EXCLUSIVELY BY A.P.T.

◆ INDEXABLE COUNTERSINK AND CHAMFERING TOOL

**POSITIVE RAKE
60°, 82°, 90° AND 100°**

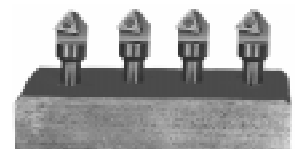
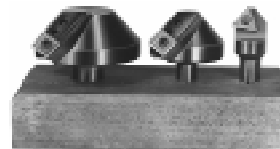


SINGLE TOOL

| Cutter Body | | Shank Size | Use Insert No. | Tool No. | | | | Price Each |
|-------------|-------|------------|----------------|----------|-------|-------|-------|------------|
| Min | Max | | | 60° | 82° | 90° | 100° | |
| 1/8 | 1/2 | 3/8 | TPGH21.51 | CC060 | CC082 | CC090 | CC000 | 69.00 |
| 1/4 | 3/4 | 1/2 | TPGH321 | CC160 | CC182 | CC190 | CC100 | 88.00 |
| 1/2 | 1-3/4 | 1/2 | SPGH433 | CC260 | CC282 | CC290 | CC200 | 129.00 |
| 1-1/4 | 2-1/2 | 3/4 | SPGH433 | CC360 | CC382 | CC390 | CC300 | 169.00 |

- C-6 Carbide insert and Torx® wrench included with each tool
- Positive rake for smooth cutting without chatter
- Carbide indexable — No tool resharpener needed
- Uses standard triangle and square inserts

SETS



3 PIECE SETS

Contains 1 Piece of Each:
1/4, 1/2 and 1-1/4 (Min.)
Inserts and torx® wrench
included with each set
supplied in wood block
CCS60 — 60° SET
CCS82 — 82° SET
CCS90 — 90° SET
CCS100 — 100° SET
PRICE — \$391.00

4 PIECE SET

Contains 1 Piece of Each:
CC060
CC082
CC090
CC000
Inserts and torx® wrench
included with set
supplied in wood block
PRICE — \$274.00
SET NO. — CCS0CMB



TPGH



SPGH

CARBIDE INSERTS

| Insert Style | Insert Number | Radius | I.C. | Thickness | Price Each | | |
|--------------|---------------|--------|------|-----------|------------|-----------|-------------|
| | | | | | C-2 | C-5 & C-6 | TiN Coated* |
| Triangle | TPGH21.51 | 1/64 | 1/4 | 3/32 | 4.75 | 5.23 | 6.11 |
| Triangle | TPGH-321 | 1/64 | 3/8 | 1/8 | 5.13 | 5.70 | 6.95 |
| Square | SPGH-433 | 3/64 | 1/2 | 3/16 | 9.45 | 9.95 | 11.95 |

*C-5 & C-6 Grade TiN Coated

REPLACEMENT PARTS LIST

| Part No. | Description | Price Each |
|-----------|---|------------|
| TF832-285 | Torx® drive flat head screw for 1/2, 3/8 I.C. | 1.75 |
| TF440-195 | Torx® drive flat head screw for 1/4 I.C. | 1.25 |
| CTW-10 | Torx® wrench for 1/2, 3/8 I.C. | 2.45 |
| CTW-6 | Torx® wrench — T6 | 1.95 |

SOLID PILOT COUNTERBORES

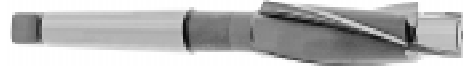
SOCKET CAP SCREW

● LIST NO. 508 — THREE FLUTE, STRAIGHT SHANK

Solid Pilot Counterbores are .001 - .002 undersize for ease of entry.



● LIST NO. 509 — THREE FLUTE, TAPER SHANK



SET NO. 508S7

7 Piece SS Set
 Contains 1 piece each:
 No.6, No.8, No.10
 1/4, 5/16, 3/8, 1/2
 Supplied in Wood Block
SET PRICE — \$177.00

SET NO. 508S6

6 Piece SS Set
 Contains 1 piece each:
 1/4, 5/16, 3/8, 1/2, 5/8, 3/4
 Supplied in Wood Block
SET PRICE — \$256.00

| Screw Size | Pilot Diameter | Cutting Diameter | Shank Diameter | Overall Length | Price Each | Morse Taper No. | Price Each |
|------------|----------------|------------------|----------------|----------------|--------------|-----------------|--------------|
| | | | | | List No. 508 | | List No. 509 |
| No.5 | .141 | .221 | 3/16 | 3 | 19.50 | — | — |
| No.6 | .150 | .242 | 7/32 | 3 | 19.50 | — | — |
| No.8 | 11/64 | 19/64 | 1/4 | 3 | 19.50 | — | — |
| No.10 | 13/64 | 21/64 | 5/16 | 3-1/2 | 20.64 | — | — |
| 1/4 | 9/32 | 13/32 | 3/8 | 3 | 23.50 | 2 | 23.50 |
| 5/16 | 11/32 | 1/2 | 7/16 | 5 | 25.65 | 2 | 25.65 |
| 3/8 | 13/32 | 19/32 | 1/2 | 6 | 29.30 | 2 | 29.30 |
| 7/16 | 15/32 | 11/16 | 1/2 | 7 | 35.02 | 2 | 35.02 |
| 1/2 | 17/32 | 25/32 | 1/2 | 7-1/2 | 39.90 | 2 | 39.90 |
| 1/2 | 17/32 | 25/32 | 3/4 | 7-1/2 | 39.90 | — | — |
| 1/2 | 9/16 | 13/16 | 3/4 | 7-1/2 | 39.90 | — | — |
| 5/8 | 21/32 | 31/32 | 3/4 | 7-1/2 | 57.37 | 2 | 57.37 |
| 5/8 | 11/16 | 1 | 3/4 | 7-1/2 | 57.37 | — | — |
| 3/4 | 13/16 | 1-3/16 | 1 | 8 | 81.22 | 3 | 81.22 |
| 7/8 | 15/16 | 1-3/8 | 1 | 8 | 122.11 | 3 | 122.11 |
| 1 | 1-1/16 | 1-9/16 | 1 | 10 | 158.47 | 3 | 158.47 |

SET NO. 508S4

4 Piece SS Set
 Contains 1 piece each:
 No.8, No.10, 1/4, 3/8
 Supplied in Wood Block
SET PRICE — \$92.00

SET NO. 509S6

6 Piece TS Set
 Contains 1 piece each:
 1/4, 5/16, 3/8, 1/2, 5/8, 3/4
 Supplied in Wood Block
SET PRICE — \$256.00

● LIST NO. 508M — THREE FLUTE

METRIC STRAIGHT SHANK



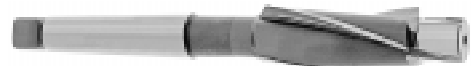
SET NO. 508S7M

7 Piece SS Set
 Contains 1 piece each:
 3mm, 4mm, 5mm, 6mm
 8mm, 10mm, 12mm
 Supplied in Wood Block
SET PRICE — \$172.11

| Screw Size mm | Pilot Diameter mm | Cutting Diameter mm | Shank Diameter Inches | Overall Length Inches | Price Each |
|---------------|-------------------|---------------------|-----------------------|-----------------------|------------|
| 3 | 3.4 | 6 | 7/32 | 3 | 19.50 |
| 4 | 4.5 | 8 | 5/16 | 3-1/2 | 19.50 |
| 5 | 5.5 | 10 | 5/16 | 4-1/2 | 20.64 |
| 6 | 6.6 | 11 | 1/2 | 5 | 23.50 |
| 8 | 9 | 15 | 1/2 | 6 | 25.65 |
| 10 | 11 | 18 | 1/2 | 7 | 29.30 |
| 12 | 14 | 20 | 5/8 | 7-1/2 | 35.02 |
| 14 | 15 | 24 | 3/4 | 8 | 39.90 |
| 16 | 17 | 26 | 1 | 9 | 57.37 |
| 20 | 21 | 33 | 1 | 10 | 81.22 |

● LIST NO. 509M — THREE FLUTE

METRIC TAPER SHANK
 #2 MORSE TAPER



| Screw Size mm | Pilot Dia. mm | Cutting Dia. mm | Overall Length mm | Price Each |
|---------------|---------------|-----------------|-------------------|------------|
| 14 | 15 | 24 | 60 | 39.90 |
| 16 | 17 | 26 | 79 | 57.37 |
| 20 | 21 | 33 | 79 | 81.22 |

HIGH SPEED STEEL

COUNTERBORES FOR FILLISTER HEAD MACHINE SCREWS

● LIST NO. 502 — TWO FLUTE, STRAIGHT SHANK

| Screw Size | Pilot Diameter | Cutting Diameter | Shank Diameter | Overall Length | Price Each |
|------------|----------------|------------------|----------------|----------------|------------|
| No.2 | .085 | .155 | .1875 | 2-1/2 | 11.19 |
| No.3 | .098 | .176 | .1875 | 2-1/2 | 11.19 |
| No.4 | .111 | .198 | .2500 | 2-5/8 | 11.19 |
| No.5 | .124 | .220 | .2500 | 2-5/8 | 12.20 |
| No.6 | .137 | .241 | .2500 | 2-5/8 | 12.70 |
| No.8 | .163 | .285 | .3125 | 2-3/4 | 13.50 |
| No.10 | .189 | .328 | .3750 | 2-7/8 | 14.50 |
| No.12 | .215 | .372 | .3750 | 3 | 16.20 |
| 1/4 | 1/4 | 13/32 | 5/16 | 3-5/8 | 23.40 |
| 5/16 | 5/16 | 15/32 | 3/8 | 4 | 24.40 |
| 3/8 | 3/8 | 19/32 | 7/16 | 4-3/8 | 27.90 |
| 7/16 | 7/16 | 21/32 | 1/2 | 4-3/4 | 31.50 |
| 1/2 | 1/2 | 25/32 | 9/16 | 5-1/4 | 34.20 |



SET NO. 502SA

5 Piece Set
 Contains 1 piece each:
 No.2, No.4, No.6, No.8, No.10
 Supplied in Wood Block
SET PRICE — \$63.08

SET NO. 502SB

4 Piece Set
 Contains 1 piece each:
 1/4, 5/16, 3/8, 1/2
 Supplied in Wood Block
SET PRICE — \$109.90

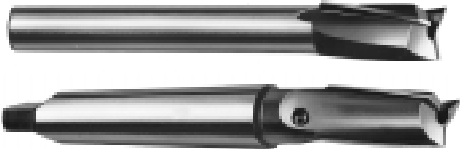
INTERCHANGEABLE COUNTERBORES AND PILOTS

SHORT SERIES



COUNTERBORES

- LIST NO. 500 — STRAIGHT SHANK
- LIST NO. 501 — TAPER SHANK



HSS INTERCHANGEABLE PILOT COUNTERBORE SETS

Complete with pilots in fitted case.
Each set includes: 13 counterbores – 26 pilots

Counterbores: 1/4" to 1" by 16ths
Pilots:
1/8, 5/32, 3/16 and 1/4 with 3/32 shanks,
3/16, 7/32, 1/4, 9/32 and 5/16 with 5/32 shanks,
1/4, 5/16, 3/8, 7/16 and 1/2 with 3/16, shanks,
5/16, 3/8, 7/16, 1/2, 9/16 and 5/8 with 1/4 shanks,
3/8, 7/16, 1/2, 9/16, 5/8 and 3/4 with 5/16 shanks

STRAIGHT SHANK SET

SET NO. 500SA
SET PRICE — \$917.00

TAPER SHANK SET
SET NO. 501S
SET PRICE — \$954.00

PILOTS

- LIST NO. 512



Pilots of different diameters can be used with each counterbore. Used in spot facing and counterboring operations with same pilot. A wide range of pilots can be used with each tool. The shank diameter ordered must be the same as the pilot hole size in the counterbore to be used.

| Counter-bore Size | Pilot Hole Size | Range of Pilot Sizes | No. of Flute | Overall Length | Price Each | | Price Each | |
|-------------------|-----------------|----------------------|--------------|----------------|----------------|--------------|-----------------|--------------|
| | | | | | Straight Shank | | Taper Shank | |
| | | | | | Shank Dia. | List No. 500 | Morse Taper No. | List No. 501 |
| 3/16 | 3/32 | 1/8 - 5/32 | 3 | 3-1/2 | 15/64 | 32.00 | — | — |
| 7/32 | 3/32 | 1/8 - 3/16 | 3 | 3-5/8 | 15/64 | 32.00 | — | — |
| 15/64 | 3/32 | 1/8 - 3/16 | 3 | 3-5/8 | 15/64 | 34.56 | — | — |
| 1/4 | 3/32 | 1/8 - 3/16 | 3 | 3-13/16 | 15/64 | 33.50 | 1 | 36.20 |
| 17/64 | 3/32 | 1/8 - 3/16 | 3 | 3-13/16 | 17/64 | 34.56 | — | — |
| 9/32 | 3/32 | 1/8 - 7/32 | 3 | 3-13/16 | 17/64 | 33.50 | 1 | 37.20 |
| 19/64 | 3/32 | 1/8 - 7/32 | 3 | 3-13/16 | 17/64 | 35.52 | — | — |
| 5/16 | 3/32 | 1/8 - 1/4 | 3 | 3-13/16 | 19/64 | 34.40 | 1 | 37.20 |
| 11/32 | 3/32 | 1/8 - 9/32 | 3 | 3-13/16 | 5/16 | 35.20 | 1 | 37.20 |
| 3/8 | 5/32 | 3/16 - 5/16 | 3 | 4-1/16 | 5/16 | 35.20 | 1 | 37.20 |
| 25/64 | 5/32 | 3/16 - 5/16 | 3 | 4-1/16 | 3/8 | 36.25 | — | — |
| 13/32 | 5/32 | 3/16 - 11/32 | 3 | 4-1/16 | 3/8 | 37.44 | 1 | 39.50 |
| 7/16 | 5/32 | 3/16 - 3/8 | 3 | 4-1/16 | 3/8 | 37.44 | 1 | 39.50 |
| 15/32 | 3/16 | 1/4 - 13/32 | 3 | 4-5/16 | 7/16 | 39.30 | 1 | 41.40 |
| 31/64 | 3/16 | 1/4 - 7/16 | 3 | 4-5/16 | 7/16 | 39.30 | — | — |
| 1/2 | 3/16 | 1/4 - 7/16 | 3 | 4-5/16 | 7/16 | 39.30 | 1 | 41.40 |
| 17/32 | 3/16 | 1/4 - 15/32 | 3 | 4-5/16 | 1/2 | 43.70 | 1 | 46.25 |
| 9/16 | 3/16 | 1/4 - 1/2 | 3 | 4-5/16 | 1/2 | 43.70 | 1 | 46.25 |
| 37/64 | 3/16 | 1/4 - 1/2 | 3 | 5-1/8 | 1/2 | 48.24 | — | — |
| 19/32 | 3/16 | 1/4 - 17/32 | 3 | 5-1/8 | 1/2 | 46.75 | 2 | 49.90 |
| 5/8 | 3/16 | 1/4 - 9/16 | 3 | 5-1/8 | 1/2 | 46.75 | 2 | 49.90 |
| 41/64 | 3/16 | 1/4 - 9/16 | 3 | 5-1/8 | 1/2 | 52.20 | — | — |
| 21/32 | 3/16 | 1/4 - 19/32 | 3 | 5-1/8 | 1/2 | 51.60 | 2 | 53.90 |
| 11/16 | 3/16 | 1/4 - 5/8 | 3 | 5-1/8 | 1/2 | 51.60 | 2 | 53.90 |
| 23/32 | 1/4 | 5/16 - 21/32 | 3 | 5-3/8 | 1/2 | 53.70 | 2 | 55.85 |
| 3/4 | 1/4 | 5/16 - 11/16 | 3 | 5-3/8 | 1/2 | 53.70 | 2 | 55.85 |
| 25/32 | 1/4 | 5/16 - 23/32 | 3 | 5-3/8 | 5/8 | 56.75 | 2 | 59.35 |
| 13/16 | 1/4 | 5/16 - 3/4 | 3 | 5-3/8 | 5/8 | 54.90 | 2 | 59.35 |
| 27/32 | 1/4 | 5/16 - 25/32 | 3 | 5-3/8 | 3/4 | 60.25 | 2 | 61.64 |
| 7/8 | 1/4 | 5/16 - 13/16 | 3 | 5-3/8 | 3/4 | 57.60 | 2 | 61.64 |
| 29/32 | 1/4 | 5/16 - 27/32 | 3 | 6-1/8 | 3/4 | 60.50 | 3 | 65.13 |
| 15/16 | 1/4 | 5/16 - 7/8 | 3 | 6-1/8 | 3/4 | 60.50 | 3 | 65.13 |
| 31/32 | 5/16 | 3/8 - 15/16 | 3 | 6-3/8 | 3/4 | 72.10 | 3 | 74.43 |
| 1 | 5/16 | 3/8 - 15/16 | 3 | 6-3/8 | 3/4 | 72.10 | 3 | 74.43 |
| 1-1/16 | 5/16 | 3/8 - 1 | 3 | 6-3/8 | 3/4 | 81.40 | 3 | 83.74 |
| 1-1/8 | 5/16 | 3/8 - 1-1/16 | 3 | 6-3/8 | 1 | 81.40 | 3 | 88.39 |
| 1-3/16 | 5/16 | 3/8 - 1-1/8 | 3 | 6-3/8 | 1 | 88.20 | 3 | 90.72 |
| 1-1/4 | 3/8 | 7/16 - 1-3/16 | 5 | 6-5/8 | 1 | 102.35 | 3 | 107.00 |
| 1-5/16 | 3/8 | 7/16 - 1-1/4 | 5 | 6-5/8 | 1 | 118.20 | 3 | 113.95 |
| 1-3/8 | 3/8 | 7/16 - 1-5/16 | 5 | 6-5/8 | 1 | 118.20 | 3 | 118.63 |
| 1-7/16 | 3/8 | 7/16 - 1-3/8 | 5 | 7-7/8 | 1-1/4 | 122.50 | 4 | 126.50 |
| 1-1/2 | 3/8 | 7/16 - 1-7/16 | 5 | 7-7/8 | 1-1/4 | 132.50 | 4 | 132.89 |
| 1-5/8 | 7/16 | 1/2 - 1-9/16 | 5 | 8-1/8 | 1-1/4 | 179.30 | 4 | 181.40 |
| 1-11/16 | 7/16 | 1/2 - 1-5/8 | 5 | 8-1/8 | 1-1/4 | 190.20 | 4 | 191.70 |
| 1-3/4 | 7/16 | 1/2 - 1-11/16 | 5 | 8-1/8 | 1-1/4 | 193.20 | 4 | 195.50 |
| 1-13/16 | 7/16 | 1/2 - 1-3/4 | 5 | 8-1/8 | 1-1/2 | 202.60 | 4 | 214.10 |
| 1-7/8 | 7/16 | 1/2 - 1-13/16 | 5 | 8-1/8 | 1-1/2 | 211.68 | 4 | 214.10 |
| 2 | 1/2 | 9/16 - 1-15/16 | 5 | 8-3/8 | 1-1/2 | 239.59 | 4 | 241.80 |
| 2-1/8 | 1/2 | 9/16 - 2-1/16 | 5 | 9-7/8 | 1-1/2 | 302.40 | 5 | 302.40 |
| 2-1/4 | 1/2 | 9/16 - 2-3/16 | 5 | 9-7/8 | 1-1/2 | 316.00 | 5 | 321.00 |
| 2-3/8 | 1/2 | 9/16 - 2-5/16 | 5 | 9-7/8 | 1-1/2 | 338.00 | 5 | 349.00 |
| 2-1/2 | 1/2 | 9/16 - 2-7/16 | 5 | 9-7/8 | 1-1/2 | 350.00 | 5 | 370.00 |
| 2-5/8 | 1/2 | 9/16 - 2-9/16 | 5 | 9-7/8 | 1-3/4 | 441.00 | 5 | 459.00 |
| 2-3/4 | 1/2 | 9/16 - 2-11/16 | 5 | 9-7/8 | 1-3/4 | 469.00 | 5 | 485.00 |
| 2-7/8 | 1/2 | 9/16 - 2-13/16 | 5 | 9-7/8 | 1-3/4 | 488.00 | 5 | 508.00 |
| 3 | 1/2 | 9/16 - 2-15/16 | 5 | 9-7/8 | 1-3/4 | 505.00 | 5 | 525.00 |

| Pilot Diameter | Price Each | | |
|----------------|----------------|-------|-------|
| | Shank Diameter | | |
| | 3/32 | 1/8 | 5/32 |
| 1/8 | 7.80 | 7.80 | — |
| 9/64 | 7.80 | — | — |
| 5/32 | 7.80 | 7.80 | 7.80 |
| 3/16 | 7.80 | 8.00 | 8.00 |
| 7/32 | 9.00 | 9.00 | 9.00 |
| 1/4 | 9.00 | 9.00 | 9.00 |
| F | 9.60 | — | — |
| 9/32 | 9.60 | 9.60 | 9.60 |
| 5/16 | 9.60 | 9.60 | 9.60 |
| 11/32 | 9.60 | 9.60 | 9.60 |
| 3/8 | — | 10.60 | 10.60 |
| 13/32 | — | 10.60 | 10.60 |
| 7/16 | — | 10.80 | 10.80 |
| 15/32 | — | 11.40 | 11.40 |
| 1/2 | — | 12.40 | — |
| 9/16 | — | 16.20 | — |

| Pilot Diameter | Price Each | | |
|----------------|----------------|-------|-------|
| | Shank Diameter | | |
| | 3/16 | 1/4 | 5/16 |
| 3/16 | 8.00 | — | — |
| 7/32 | 9.00 | — | — |
| 1/4 | 9.00 | — | — |
| F | 9.60 | — | — |
| 9/32 | 9.60 | 9.60 | — |
| 5/16 | 9.60 | 9.60 | — |
| 11/32 | 9.60 | 9.60 | 9.60 |
| 3/8 | 10.60 | 10.60 | 10.60 |
| 13/32 | 10.60 | 10.60 | 10.60 |
| 7/16 | 10.80 | 10.80 | 10.80 |
| 15/32 | 11.40 | 11.40 | 11.40 |
| 1/2 | 12.40 | 12.40 | 12.40 |
| 17/32 | 14.40 | 14.40 | 14.40 |
| 9/16 | 16.20 | 16.20 | 16.20 |
| 19/32 | 17.00 | 17.00 | 17.00 |
| 5/8 | 17.80 | 17.80 | 17.80 |
| 21/32 | 18.00 | 18.00 | 18.00 |
| 11/16 | 18.20 | 18.20 | 18.20 |
| 23/32 | — | 20.60 | 20.60 |
| 3/4 | 20.60 | 20.60 | 20.60 |
| 25/32 | 22.00 | 22.00 | 22.00 |
| 13/16 | — | 23.20 | 23.20 |
| 27/32 | — | 24.00 | 24.00 |
| 7/8 | 25.60 | 25.60 | 25.60 |
| 29/32 | — | 26.00 | 26.00 |
| 15/16 | 27.00 | — | 27.00 |
| 31/32 | — | — | 28.50 |
| 1 | 28.50 | — | 28.50 |
| 1-1/16 | — | — | 29.00 |
| 1-1/8 | — | — | 35.00 |
| 1-3/16 | — | — | 36.00 |

| Pilot Diameter | Price Each | | |
|----------------|----------------|-------|-------|
| | Shank Diameter | | |
| | 3/8 | 7/16 | 1/2 |
| 1/4 | 10.60 | — | — |
| 13/32 | 10.80 | — | — |
| 7/16 | 10.80 | — | — |
| 15/32 | 11.40 | — | — |
| 1/2 | 12.40 | 12.40 | — |
| 17/32 | 14.40 | 14.40 | 14.40 |
| 9/16 | 16.20 | 16.20 | 16.20 |
| 19/32 | 17.00 | 17.00 | 17.00 |
| 5/8 | 17.80 | 17.80 | 17.80 |
| 21/32 | 18.00 | 18.00 | 18.00 |
| 11/16 | 18.20 | 18.20 | 18.20 |
| 23/32 | 20.60 | 20.60 | 20.60 |
| 3/4 | 20.60 | 20.60 | 20.60 |
| 25/32 | 22.00 | 22.00 | — |
| 13/16 | 23.20 | 23.20 | 23.20 |
| 27/32 | 24.00 | — | — |
| 7/8 | 25.60 | 25.60 | 25.60 |
| 29/32 | 26.00 | — | — |
| 15/16 | 27.00 | 27.00 | 27.00 |
| 31/32 | 28.50 | — | — |
| 1 | 28.50 | 28.50 | 28.50 |
| 1-1/16 | 29.00 | 29.00 | 29.00 |
| 1-1/8 | 35.00 | 35.00 | 35.00 |
| 1-3/16 | 36.00 | 36.00 | 36.00 |
| 1-1/4 | 38.00 | 38.00 | 38.00 |
| 1-5/16 | 40.00 | 40.00 | 40.00 |
| 1-3/8 | 42.00 | 42.00 | 42.00 |
| 1-7/16 | 44.00 | 44.00 | 44.00 |
| 1-1/2 | — | 46.00 | 46.00 |
| 1-9/16 | — | 48.00 | 48.00 |
| 1-5/8 | — | 49.00 | 49.00 |
| 1-11/16 | — | 55.00 | 55.00 |
| 1-3/4 | — | 60.00 | 60.00 |
| 1-13/16 | — | 66.00 | 66.00 |
| 1-7/8 | — | 75.00 | 75.00 |
| 1-15/16 | — | — | 78.00 |
| 2 | — | — | 82.00 |



HIGH SPEED STEEL

HOLE CUTTERS



These Hole Cutters are recommended for use in hand held air or electric drill motors as well as light drill press applications in sheet metal, thin wall tubing, steel plate or any other larger diameter shallow hole cutting.

This tool centers quickly and is held securely in position after the pilot drill has entered the work piece. The cutter body then cuts a clean, burr-free hole faster than conventional twist drills or hole saws.

With normal care, tool life is significantly longer than other hole cutting tools. Inexpensive resharpening will allow repeated use.

A versatile and highly useful tool!

HOLE CUTTER SET

SET NO. HC690S

Set contains 1 piece each 1/2", 5/8", 3/4", 1" with 1/2" Shanks and 1/4" Pilot Drills
Supplied in wood block
SET PRICE — \$168.00



◆ **LIST NO. HC690**

PILOT DRILL FURNISHED WITH EACH CUTTER

| 3/8" SHANK 3/16" Pilot | | |
|---------------------------|---------------|------------|
| Size | No. of Flutes | Price Each |
| 1/2 | 4 | 30.45 |
| 9/16 | 4 | 39.00 |
| 5/8 | 4 | 41.45 |
| 1/2" SHANK 1/4" Pilot | | |
| Size | No. of Flutes | Price Each |
| 1/2 | 4 | 30.45 |
| 9/16 | 4 | 39.00 |
| 5/8 | 4 | 41.45 |
| 11/16 | 4 | 43.85 |
| 3/4 | 4 | 45.10 |
| 13/16 | 4 | 46.75 |
| 7/8 | 4 | 48.75 |
| 29/32 | 4 | 48.95 |
| 15/16 | 5 | 49.85 |
| 1 | 5 | 51.25 |
| 1-1/16 | 5 | 53.95 |
| 1-1/8 | 5 | 56.25 |
| 1-3/16 | 5 | 59.00 |
| 1-1/4 | 5 | 61.35 |
| 1-5/16 | 5 | 66.55 |
| 1-3/8 | 5 | 70.45 |
| 1-1/2 | 5 | 74.25 |
| 1-5/8 | 6 | 93.45 |
| 1-3/4 | 6 | 100.75 |
| 1-7/8 | 6 | 108.00 |
| 2 | 6 | 113.55 |

32nd, 64th and Metric Sizes available at a nominal extra charge.

HIGH SPEED STEEL

PILOT DRILLS

PILOT DRILL WITH SINGLE FLAT

For Use In Above Hole Cutters.



■ **LIST NO. 673**

135° SPLIT POINT

3/16" Diameter — **PRICE EACH \$1.89**
1/4" Diameter — **PRICE EACH \$2.59**

PILOT DRILL WITH TWO WHISTLE NOTCHES

For Use in Hole Saws, Hole Cutters and Other Pilot Tools.



■ **LIST NO. 671**
SPLIT POINT

1/4" Diameter — 4" Overall,
1-1/4" Flute Length
PRICE EACH \$2.84

Other sizes available by special order

HIGH SPEED STEEL

ANNULAR CUTTERS

- ▶ LIST NO. 251 — 1" DEPTH OF CUT
- ▶ LIST NO. 251T — 1" DEPTH OF CUT TIN COATED
- ▶ LIST NO. 252 — 2" DEPTH OF CUT

- ▶ LIST NO. 252T — 2" DEPTH OF CUT TIN COATED
- ▶ LIST NO. 253 — 3" DEPTH OF CUT
- ▶ LIST NO. 253T — 3" DEPTH OF CUT TIN COATED



All cutters come with 3/4" shank diameter with two flats. The Federal Annular Cutter is made of sturdy M-2 Steel construction, which enables you to cut a burr free hole. The Federal Annular Cutter penetrates rapidly, cutting only the periphery of the hole thus allowing the pilot pin to eject the center plug of steel.

FRACTIONAL SIZES

| Dia. of Cut | Price Each | | | | | |
|-------------|--------------|--------------------------|--------------|--------------------------|--------------|--------------------------|
| | List No. 251 | TiN Coated List No. 251T | List No. 252 | TiN Coated List No. 252T | List No. 253 | TiN Coated List No. 253T |
| 7/16 | 40.44 | 59.14 | 55.99 | 79.95 | — | — |
| 1/2 | 40.94 | 60.97 | 57.75 | 82.41 | — | — |
| 9/16 | 42.67 | 62.70 | 59.60 | 84.25 | — | — |
| 5/8 | 46.14 | 66.17 | 66.24 | 90.90 | — | — |
| 11/16 | 46.69 | 66.71 | 68.42 | 93.08 | — | — |
| 3/4 | 50.76 | 70.78 | 75.05 | 99.70 | — | — |
| 13/16 | 52.60 | 72.63 | 76.79 | 101.44 | — | — |
| 7/8 | 58.84 | 78.87 | 87.75 | 112.40 | 199.52 | 289.30 |
| 15/16 | 61.15 | 81.17 | 90.63 | 115.29 | 123.49 | 179.06 |
| 1 | 68.09 | 88.12 | 99.28 | 123.94 | 135.22 | 196.06 |
| 1-1/16 | 68.22 | 88.24 | 99.28 | 123.89 | 135.22 | 196.06 |
| 1-1/8 | 75.05 | 95.07 | 113.17 | 137.82 | 154.20 | 223.59 |
| 1-3/16 | 77.35 | 106.09 | 117.80 | 154.14 | 160.58 | 232.84 |
| 1-1/4 | 90.05 | 118.79 | 129.35 | 165.69 | 176.20 | 255.49 |
| 1-5/16 | 112.00 | 140.74 | 140.90 | 177.24 | 191.96 | 278.34 |
| 1-3/8 | 123.56 | 152.30 | 146.68 | 183.02 | 199.88 | 289.82 |
| 1-7/16 | 133.17 | 161.91 | 156.65 | 192.99 | 213.43 | 309.47 |
| 1-1/2 | 135.11 | 163.84 | 161.69 | 198.03 | 220.34 | 319.49 |
| 1-9/16 | 144.38 | 200.74 | 185.98 | 256.43 | 253.47 | 367.53 |
| 1-5/8 | 150.93 | 207.29 | 192.55 | 263.00 | 262.39 | 380.46 |
| 1-11/16 | 164.60 | 220.97 | 203.61 | 274.06 | 277.42 | 402.25 |
| 1-3/4 | 179.02 | 235.39 | 232.72 | 303.17 | 317.05 | 459.72 |
| 1-13/16 | 184.15 | 240.52 | 241.51 | 311.97 | — | — |
| 1-7/8 | 194.83 | 251.20 | 266.89 | 337.35 | 367.03 | 532.19 |
| 1-15/16 | 205.60 | 261.96 | 274.25 | 344.70 | 373.66 | 541.80 |
| 2 | 226.24 | 282.60 | 278.38 | 348.83 | 379.37 | 550.08 |
| 2-1/16 | 260.27 | 364.28 | 318.28 | 422.29 | — | — |

- ▶ LIST NO. 251M — 1" DEPTH OF CUT
- ▶ LIST NO. 252M — 2" DEPTH OF CUT

METRIC SIZES

| Size | Price Each | |
|------|---------------|---------------|
| | List No. 251M | List No. 252M |
| 14mm | 46.53 | 64.97 |
| 16mm | 50.31 | 72.22 |
| 18mm | 54.09 | 79.90 |
| 20mm | 57.87 | 83.69 |
| 22mm | 64.15 | 95.66 |
| 24mm | 69.20 | 101.98 |

| Size | Price Each | |
|------|---------------|---------------|
| | List No. 251M | List No. 252M |
| 25mm | 72.00 | 105.00 |
| 26mm | 74.23 | 108.24 |
| 28mm | 79.30 | 118.34 |
| 30mm | 84.33 | 128.42 |
| 32mm | 98.18 | 141.02 |

TiN Coating available upon request. Please inquire.



SET NO. 251SA

7 Piece Set - 1" Cut
Contains 1 piece of each:
9/16, 11/16, 13/16, 15/16, 1", 1-1/16, 2"
Supplied in wood block.

SET PRICE — \$565.00

SET NO. 252SB

7 Piece Set - 2" Cut
Contains 1 piece of each:
9/16, 11/16, 13/16, 15/16, 1", 1-1/16, 2"
Supplied in wood block.

SET PRICE — \$772.00

▶ LIST NO. 251EP

| EJECTOR - PILOT | | |
|-----------------|-------------------------|------------|
| Size | Description | Price Each |
| 1/4 x 3 | Ejector - Pilot, Short | 12.75 |
| 1/4 x 4 | Ejector - Pilot, Long | 19.02 |
| 1/4 x 5 | Ejector - Pilot, X-Long | 24.77 |

HIGH SPEED STEEL CHUCKING REAMERS

STRAIGHT SHANK

► LIST NO. 550—STRAIGHT FLUTE



For general purpose reaming to close tolerances.

► LIST NO. 551—SPIRAL FLUTE



Designed for use in materials where additional shear is necessary and to improve chip removal in blind holes.

FRACTIONAL SIZES

| Size | Dec. Equiv. | Flute Length | Overall Length | Price Each | |
|-------|-------------|--------------|----------------|-----------------------|---------------------|
| | | | | Straight List No. 550 | Spiral List No. 551 |
| 1/32 | .0312 | 1/2 | 2-1/2 | 16.50 | — |
| 3/64 | .0469 | 1/2 | 2-1/2 | 17.92 | 19.35 |
| 1/16 | .0625 | 1/2 | 2-1/2 | 16.30 | 19.36 |
| 5/64 | .0781 | 3/4 | 3 | 15.01 | 15.52 |
| 3/32 | .0938 | 3/4 | 3 | 12.89 | 15.52 |
| 7/64 | .1094 | 7/8 | 3-1/2 | 15.01 | 15.52 |
| 1/8 | .1250 | 7/8 | 3-1/2 | 11.57 | 14.74 |
| 9/64 | .1406 | 1 | 4 | 17.92 | 19.36 |
| 5/32 | .1562 | 1 | 4 | 16.28 | 19.36 |
| 11/64 | .1719 | 1-1/8 | 4-1/2 | 17.92 | 19.36 |
| 3/16 | .1875 | 1-1/8 | 4-1/2 | 16.30 | 19.36 |
| 13/64 | .2031 | 1-1/4 | 5 | 21.64 | 22.35 |
| 7/32 | .2188 | 1-1/4 | 5 | 21.00 | 21.85 |
| 15/64 | .2344 | 1-1/2 | 6 | 21.64 | 22.35 |
| 1/4 | .2500 | 1-1/2 | 6 | 18.91 | 21.00 |
| 17/64 | .2656 | 1-1/2 | 6 | 24.15 | 24.88 |
| 9/32 | .2812 | 1-1/2 | 6 | 24.15 | 24.88 |
| 19/64 | .2969 | 1-1/2 | 6 | 25.49 | 26.88 |
| 5/16 | .3125 | 1-1/2 | 6 | 22.48 | 23.29 |
| 21/64 | .3281 | 1-1/2 | 6 | 27.54 | 27.89 |
| 11/32 | .3438 | 1-1/2 | 6 | 27.54 | 27.89 |
| 23/64 | .3594 | 1-3/4 | 7 | 27.54 | 27.89 |
| 3/8 | .3750 | 1-3/4 | 7 | 24.15 | 27.36 |
| 25/64 | .3906 | 1-3/4 | 7 | 28.54 | 31.26 |
| 13/32 | .4062 | 1-3/4 | 7 | 29.58 | 31.26 |
| 27/64 | .4219 | 1-3/4 | 7 | 31.29 | 32.26 |
| 7/16 | .4375 | 1-3/4 | 7 | 28.54 | 30.75 |

| Size | Dec. Equiv. | Flute Length | Overall Length | Price Each | |
|-------|-------------|--------------|----------------|-----------------------|---------------------|
| | | | | Straight List No. 550 | Spiral List No. 551 |
| 29/64 | .4531 | 1-3/4 | 7 | 34.73 | 35.07 |
| 15/32 | .4688 | 1-3/4 | 7 | 33.84 | 35.07 |
| 31/64 | .4844 | 2 | 8 | 34.88 | 35.07 |
| 1/2 | .5000 | 2 | 8 | 31.29 | 31.62 |
| 33/64 | .5156 | 2 | 8 | 37.25 | 40.15 |
| 17/32 | .5312 | 2 | 8 | 37.26 | 40.17 |
| 35/64 | .5469 | 2 | 8 | 36.50 | 41.00 |
| 9/16 | .5625 | 2 | 8 | 36.44 | 41.05 |
| 37/64 | .5781 | 2 | 8 | 42.50 | 45.40 |
| 19/32 | .5938 | 2 | 8 | 42.48 | 45.40 |
| 39/64 | .6094 | 2-1/4 | 9 | 42.50 | 43.40 |
| 5/8 | .6250 | 2-1/4 | 9 | 42.48 | 43.38 |
| 41/64 | .6406 | 2-1/4 | 9 | 48.70 | 51.00 |
| 21/32 | .6562 | 2-1/4 | 9 | 48.71 | 50.97 |
| 43/64 | .6719 | 2-1/4 | 9 | 54.60 | — |
| 11/16 | .6875 | 2-1/4 | 9 | 48.29 | 50.97 |
| 45/64 | .7031 | 2-1/4 | 9 | 55.95 | — |
| 23/32 | .7188 | 2-1/4 | 9 | 55.97 | 57.81 |
| 47/64 | .7344 | 2-1/2 | 9-1/2 | 55.95 | 58.69 |
| 3/4 | .7500 | 2-1/2 | 9-1/2 | 53.70 | 56.74 |
| 49/64 | .7656 | 2-1/2 | 9-1/2 | 62.75 | — |
| 25/32 | .7812 | 2-1/2 | 9-1/2 | 62.77 | 65.15 |
| 51/64 | .7969 | 2-1/2 | 9-1/2 | 62.75 | — |
| 13/16 | .8125 | 2-1/2 | 9-1/2 | 62.77 | 65.15 |
| 53/64 | .8281 | 2-1/2 | 9-1/2 | 71.20 | — |
| 27/32 | .8438 | 2-1/2 | 9-1/2 | 71.19 | 73.08 |
| 55/64 | .8594 | 2-5/8 | 10 | 69.50 | 73.00 |

| Size | Dec. Equiv. | Flute Length | Overall Length | Price Each | |
|---------|-------------|--------------|----------------|-----------------------|---------------------|
| | | | | Straight List No. 550 | Spiral List No. 551 |
| 7/8 | .8750 | 2-5/8 | 10 | 69.51 | 78.08 |
| 57/64 | .8906 | 2-5/8 | 10 | 78.35 | — |
| 29/32 | .9062 | 2-5/8 | 10 | 78.35 | 81.15 |
| 59/64 | .9219 | 2-5/8 | 10 | 78.35 | — |
| 15/16 | .9375 | 2-5/8 | 10 | 78.35 | 81.15 |
| 61/64 | .9531 | 2-5/8 | 10 | 88.10 | — |
| 31/32 | .9688 | 2-5/8 | 10 | 88.12 | 91.60 |
| 63/64 | .9844 | 2-3/4 | 10-1/2 | 88.10 | — |
| 1 | 1.0000 | 2-3/4 | 10-1/2 | 86.43 | 91.60 |
| 1-1/32 | 1.0313 | 2-3/4 | 10-1/2 | 99.20 | — |
| 1-1/16 | 1.0625 | 2-3/4 | 10-1/2 | 99.17 | 102.75 |
| 1-3/32 | 1.0938 | 2-7/8 | 11 | 105.95 | — |
| 1-1/8 | 1.1250 | 2-7/8 | 11 | 105.97 | 113.22 |
| 1-5/32 | 1.1562 | 2-7/8 | 11 | 119.50 | — |
| 1-3/16 | 1.1875 | 2-7/8 | 11 | 119.43 | 124.47 |
| 1-1/4 | 1.2500 | 3 | 11-1/2 | 131.27 | 138.13 |
| 1-5/16 | 1.3125 | 3 | 11-1/2 | 149.00 | 169.00 |
| 1-3/8 | 1.3750 | 3-1/4 | 12 | 152.00 | 173.00 |
| 1-7/16 | 1.4375 | 3-1/4 | 12 | 179.00 | 189.00 |
| 1-1/2 | 1.5000 | 3-1/2 | 12-1/2 | 184.66 | 192.84 |
| 1-9/16 | 1.5625 | 3-1/2 | 12-1/2 | 389.75 | — |
| 1-5/8 | 1.6250 | 3-5/8 | 13 | 389.75 | — |
| 1-11/16 | 1.6875 | 3-5/8 | 13 | 429.00 | — |
| 1-3/4 | 1.7500 | 4 | 13-1/2 | 429.00 | — |
| 1-7/8 | 1.8750 | 4 | 14 | 478.80 | — |
| 2 | 2.0000 | 4 | 14 | 478.80 | — |

WIRE GAUGE SIZES

| Size | Dec. Equiv. | Flute Length | Overall Length | Price Each | |
|------|-------------|--------------|----------------|-----------------------|---------------------|
| | | | | Straight List No. 550 | Spiral List No. 551 |
| 1 | .2280 | 1-1/2 | 6 | 21.45 | 23.60 |
| 2 | .2210 | 1-1/2 | 6 | 21.45 | 23.60 |
| 3 | .2130 | 1-1/4 | 5 | 21.45 | 23.60 |
| 4 | .2090 | 1-1/4 | 5 | 21.45 | 23.60 |
| 5 | .2055 | 1-1/4 | 5 | 21.45 | 23.60 |
| 6 | .2040 | 1-1/4 | 5 | 21.45 | 23.60 |
| 7 | .2010 | 1-1/4 | 5 | 21.45 | 23.60 |
| 8 | .1990 | 1-1/4 | 5 | 21.45 | 23.60 |
| 9 | .1960 | 1-1/4 | 5 | 21.45 | 23.60 |
| 10 | .1935 | 1-1/4 | 5 | 21.45 | 23.60 |
| 11 | .1910 | 1-1/4 | 5 | 20.92 | 23.01 |
| 12 | .1890 | 1-1/8 | 4-1/2 | 18.29 | 20.12 |
| 13 | .1850 | 1-1/8 | 4-1/2 | 20.04 | 22.04 |
| 14 | .1820 | 1-1/8 | 4-1/2 | 20.04 | 22.04 |
| 15 | .1800 | 1-1/8 | 4-1/2 | 20.04 | 22.04 |
| 16 | .1770 | 1-1/8 | 4-1/2 | 18.29 | 20.12 |
| 17 | .1730 | 1-1/8 | 4-1/2 | 18.29 | 20.12 |
| 18 | .1695 | 1-1/8 | 4-1/2 | 16.98 | 18.68 |
| 19 | .1660 | 1-1/8 | 4-1/2 | 16.98 | 18.68 |
| 20 | .1610 | 1-1/8 | 4-1/2 | 16.98 | 18.68 |
| 21 | .1590 | 1-1/8 | 4-1/2 | 16.98 | 18.68 |

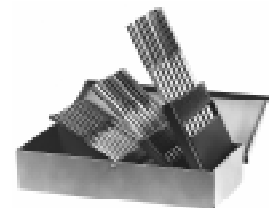
| Size | Dec. Equiv. | Flute Length | Overall Length | Price Each | |
|------|-------------|--------------|----------------|-----------------------|---------------------|
| | | | | Straight List No. 550 | Spiral List No. 551 |
| 22 | .1570 | 1 | 4 | 16.98 | 18.68 |
| 23 | .1540 | 1 | 4 | 16.98 | 18.68 |
| 24 | .1520 | 1 | 4 | 16.98 | 18.68 |
| 25 | .1495 | 1 | 4 | 16.98 | 18.68 |
| 26 | .1470 | 1 | 4 | 16.98 | 18.68 |
| 27 | .1440 | 1 | 4 | 16.98 | 18.68 |
| 28 | .1405 | 1 | 4 | 16.98 | 18.68 |
| 29 | .1360 | 1 | 4 | 16.98 | 18.68 |
| 30 | .1285 | 7/8 | 3-1/2 | 12.89 | 14.18 |
| 31 | .1200 | 7/8 | 3-1/2 | 14.17 | 15.59 |
| 32 | .1160 | 7/8 | 3-1/2 | 14.17 | 15.59 |
| 33 | .1130 | 7/8 | 3-1/2 | 14.17 | 15.59 |
| 34 | .1110 | 7/8 | 3-1/2 | 14.17 | 15.59 |
| 35 | .1100 | 7/8 | 3-1/2 | 14.17 | 15.59 |
| 36 | .1065 | 7/8 | 3-1/2 | 14.17 | 15.59 |
| 37 | .1040 | 7/8 | 3-1/2 | 14.17 | 15.59 |
| 38 | .1015 | 7/8 | 3-1/2 | 14.17 | 15.59 |
| 39 | .0995 | 7/8 | 3-1/2 | 14.17 | 15.59 |
| 40 | .0980 | 7/8 | 3-1/2 | 14.17 | 15.59 |
| 41 | .0960 | 7/8 | 3-1/2 | 14.17 | 15.59 |

| Size | Dec. Equiv. | Flute Length | Overall Length | Price Each | |
|------|-------------|--------------|----------------|-----------------------|---------------------|
| | | | | Straight List No. 550 | Spiral List No. 551 |
| 42 | .0935 | 3/4 | 3 | 14.17 | 15.59 |
| 43 | .0890 | 3/4 | 3 | 14.17 | 15.59 |
| 44 | .0860 | 3/4 | 3 | 14.17 | 15.59 |
| 45 | .0820 | 3/4 | 3 | 14.17 | 15.59 |
| 46 | .0810 | 3/4 | 3 | 14.17 | 15.59 |
| 47 | .0785 | 3/4 | 3 | 14.17 | 15.11 |
| 48 | .0760 | 3/4 | 3 | 14.17 | 15.59 |
| 49 | .0730 | 3/4 | 3 | 16.23 | 17.85 |
| 50 | .0700 | 3/4 | 3 | 16.98 | 18.68 |
| 51 | .0670 | 3/4 | 3 | 16.98 | 18.68 |
| 52 | .0635 | 1/2 | 2-1/2 | 16.98 | 18.68 |
| 53 | .0595 | 1/2 | 2-1/2 | 16.98 | 18.68 |
| 54 | .0550 | 1/2 | 2-1/2 | 16.98 | 18.68 |
| 55 | .0520 | 1/2 | 2-1/2 | 16.98 | 18.68 |
| 56 | .0465 | 1/2 | 2-1/2 | 16.98 | 18.68 |
| 57 | .0430 | 1/2 | 2-1/2 | 16.98 | 18.68 |
| 58 | .0420 | 1/2 | 2-1/2 | 16.98 | 18.68 |
| 59 | .0410 | 1/2 | 2-1/2 | 16.98 | 18.68 |
| 60 | .0400 | 1/2 | 2-1/2 | 16.98 | 18.68 |
| 70 | .0280 | 1/2 | 2-1/2 | 16.98 | — |

SETS

STRAIGHT SHANK—STRAIGHT FLUTE

| Pieces Per Set | Set Description | Type of Holder | Set No. | Price Each |
|----------------|---|----------------|---------|------------|
| 29 | Fractional Sizes — 1/16" thru 1/2" by 64ths | Metal Index | 550SF | 678.12 |
| 26 | Letter Sizes — A thru Z | Metal Index | 550SL | 688.65 |
| 60 | Wire Gauge Sizes — #1 thru #60 | Plastic Pouch | 550SW | 1024.70 |
| 14 | Over and Under Sizes — .1240 thru .5010 | Metal Index | 550SX | 338.35 |
| 14 | Dowel Pin Sizes — .1230 thru .4995 | Metal Index | 550SD | 338.45 |



CHUCKING REAMERS

STRAIGHT SHANK

▶ LIST NO. 550 — STRAIGHT FLUTE



▶ LIST NO. 551 — SPIRAL FLUTE



LETTER SIZES

| Size | Dec. Equiv. | Flute Length | Overall Length | Price Each | |
|------|-------------|--------------|----------------|-----------------------|---------------------|
| | | | | Straight List No. 550 | Spiral List No. 551 |
| A | .2340 | 1-1/2 | 6 | 23.11 | 26.50 |
| B | .2380 | 1-1/2 | 6 | 23.11 | 26.50 |
| C | .2420 | 1-1/2 | 6 | 23.11 | 26.50 |
| D | .2460 | 1-1/2 | 6 | 23.11 | 26.50 |
| E | .2500 | 1-1/2 | 6 | 18.91 | 21.00 |
| F | .2570 | 1-1/2 | 6 | 23.11 | 26.50 |
| G | .2610 | 1-1/2 | 6 | 24.56 | 28.25 |
| H | .2660 | 1-1/2 | 6 | 25.96 | 29.85 |
| I | .2720 | 1-1/2 | 6 | 25.96 | 29.85 |
| J | .2770 | 1-1/2 | 6 | 25.96 | 29.85 |
| K | .2810 | 1-1/2 | 6 | 25.96 | 29.85 |
| L | .2900 | 1-1/2 | 6 | 25.96 | 29.85 |
| M | .2950 | 1-1/2 | 6 | 25.96 | 29.85 |

| Size | Dec. Equiv. | Flute Length | Overall Length | Price Each | |
|------|-------------|--------------|----------------|-----------------------|---------------------|
| | | | | Straight List No. 550 | Spiral List No. 551 |
| N | .3020 | 1-1/2 | 6 | 25.96 | 29.85 |
| O | .3160 | 1-1/2 | 6 | 26.85 | 30.88 |
| P | .3230 | 1-1/2 | 6 | 27.60 | 31.75 |
| Q | .3320 | 1-1/2 | 6 | 27.60 | 31.75 |
| R | .3390 | 1-1/2 | 6 | 27.60 | 31.75 |
| S | .3480 | 1-3/4 | 7 | 27.60 | 31.75 |
| T | .3580 | 1-3/4 | 7 | 27.60 | 31.75 |
| U | .3680 | 1-3/4 | 7 | 27.60 | 31.75 |
| V | .3770 | 1-3/4 | 7 | 30.75 | 35.35 |
| W | .3860 | 1-3/4 | 7 | 30.75 | 35.35 |
| X | .3970 | 1-3/4 | 7 | 30.75 | 35.35 |
| Y | .4040 | 1-3/4 | 7 | 31.59 | 36.33 |
| Z | .4130 | 1-3/4 | 7 | 31.59 | 36.33 |

▶ LIST NO. 550 — STRAIGHT FLUTE

▶ LIST NO. 551 — SPIRAL FLUTE

OVER AND UNDER SIZES — DOWEL PIN SIZES

| Size | Flute Length | Overall Length | Price Each | |
|-------|--------------|----------------|-----------------------|---------------------|
| | | | Straight List No. 550 | Spiral List No. 551 |
| .0623 | 7/8 | 3-1/2 | 21.50 | — |
| .0627 | 7/8 | 3-1/2 | 21.50 | — |
| .0780 | 7/8 | 3-1/2 | 19.00 | — |
| .0782 | 7/8 | 3-1/2 | 19.00 | — |
| .1230 | 7/8 | 3-1/2 | 14.60 | — |
| .1240 | 7/8 | 3-1/2 | 14.50 | 15.95 |
| .1247 | 7/8 | 3-1/2 | 14.50 | — |
| .1251 | 7/8 | 3-1/2 | 14.15 | — |
| .1260 | 7/8 | 3-1/2 | 14.15 | — |
| .1855 | 1-1/8 | 4-1/2 | 20.25 | — |
| .1865 | 1-1/8 | 4-1/2 | 20.25 | 22.28 |
| .1870 | 1-1/8 | 4-1/2 | 20.25 | — |
| .1885 | 1-1/8 | 4-1/2 | 20.25 | 22.28 |
| .2480 | 1-1/2 | 6 | 21.00 | — |
| .2490 | 1-1/2 | 6 | 21.00 | — |
| .2495 | 1-1/2 | 6 | 21.50 | — |
| .2510 | 1-1/2 | 6 | 21.50 | 23.65 |
| .3105 | 1-1/2 | 6 | 24.15 | 26.57 |
| .3115 | 1-1/2 | 6 | 24.15 | 26.57 |
| .3120 | 1-1/2 | 6 | 24.15 | — |
| .3135 | 1-1/2 | 6 | 24.15 | 26.57 |
| .3730 | 1-3/4 | 7 | 26.70 | 29.37 |

| Size | Flute Length | Overall Length | Price Each | |
|--------|--------------|----------------|-----------------------|---------------------|
| | | | Straight List No. 550 | Spiral List No. 551 |
| .3740 | 1-3/4 | 7 | 26.70 | — |
| .3745 | 1-3/4 | 7 | 26.70 | — |
| .3760 | 1-3/4 | 7 | 26.70 | 28.60 |
| .4355 | 1-3/4 | 7 | 29.50 | — |
| .4365 | 1-3/4 | 7 | 29.50 | 32.45 |
| .4370 | 1-3/4 | 7 | 29.50 | — |
| .4385 | 1-3/4 | 7 | 29.50 | 32.45 |
| .4980 | 2 | 8 | 33.00 | — |
| .4990 | 2 | 8 | 33.00 | 36.30 |
| .4995 | 2 | 8 | 33.00 | — |
| .5010 | 2 | 8 | 33.00 | 36.30 |
| .6230 | 2-1/4 | 9 | 63.50 | — |
| .6240 | 2-1/4 | 9 | 63.50 | — |
| .6245 | 2-1/4 | 9 | 63.50 | — |
| .6260 | 2-1/4 | 9 | 63.50 | — |
| .7480 | 2-1/2 | 9-1/2 | 81.20 | — |
| .7490 | 2-1/2 | 9-1/2 | 73.50 | — |
| .7510 | 2-1/2 | 9-1/2 | 73.50 | — |
| .8740 | 2-5/8 | 10 | 94.60 | — |
| .8760 | 2-5/8 | 10 | 94.60 | — |
| .9980 | 2-3/4 | 10-1/2 | 118.25 | — |
| .9990 | 2-3/4 | 10-1/2 | 118.25 | — |
| 1.0010 | 2-3/4 | 10-1/2 | 118.25 | — |

▶ LIST NO. 550M — STRAIGHT FLUTE



METRIC SIZES

| Size | Dec. Equiv. | Price Each |
|------|-------------|------------|
| 0.75 | .0295 | 17.50 |
| 1.00 | .0394 | 17.50 |
| 1.15 | .0453 | 17.50 |
| 1.90 | .0748 | 17.50 |
| 2.00 | .0787 | 14.20 |
| 2.10 | .0827 | 16.50 |
| 2.40 | .0945 | 16.50 |
| 2.50 | .0984 | 14.20 |
| 2.75 | .1083 | 14.20 |
| 2.80 | .1102 | 14.20 |
| 3.00 | .1181 | 14.20 |
| 3.50 | .1378 | 16.95 |
| 4.00 | .1575 | 16.95 |
| 4.50 | .1772 | 20.00 |

| Size | Dec. Equiv. | Price Each |
|-------|-------------|------------|
| 5.00 | .1969 | 21.50 |
| 5.30 | .2087 | 23.00 |
| 5.50 | .2165 | 21.50 |
| 6.00 | .2362 | 23.50 |
| 6.50 | .2559 | 23.50 |
| 7.00 | .2756 | 25.95 |
| 7.50 | .2953 | 25.95 |
| 8.00 | .3150 | 26.85 |
| 8.50 | .3346 | 27.60 |
| 9.00 | .3543 | 27.60 |
| 9.50 | .3740 | 26.70 |
| 10.00 | .3937 | 30.75 |
| 10.50 | .4134 | 29.00 |
| 11.00 | .4331 | 29.75 |

| Size | Dec. Equiv. | Price Each |
|-------|-------------|------------|
| 11.50 | .4528 | 34.75 |
| 12.00 | .4724 | 36.00 |
| 12.50 | .4921 | 37.00 |
| 13.00 | .5118 | 38.00 |
| 13.50 | .5315 | 38.00 |
| 14.00 | .5512 | 38.00 |
| 14.50 | .5709 | 42.50 |
| 15.00 | .5906 | 42.50 |
| 15.50 | .6102 | 48.75 |
| 16.00 | .6299 | 48.75 |
| 16.50 | .6496 | 48.75 |
| 17.00 | .6693 | 48.75 |
| 17.50 | .6890 | 56.00 |
| 18.00 | .7087 | 56.00 |

| Size | Dec. Equiv. | Price Each |
|-------|-------------|------------|
| 18.50 | .7283 | 56.00 |
| 19.00 | .7480 | 56.00 |
| 19.50 | .7677 | 62.75 |
| 20.00 | .7874 | 62.75 |
| 20.50 | .8071 | 62.75 |
| 21.00 | .8268 | 71.50 |
| 21.50 | .8465 | 71.50 |
| 22.00 | .8661 | 71.50 |
| 22.50 | .8858 | 78.75 |
| 23.00 | .9055 | 78.75 |
| 23.50 | .9252 | 78.75 |
| 24.00 | .9449 | 88.75 |
| 24.50 | .9646 | 88.75 |
| 25.00 | .9843 | 88.75 |

CHUCKING REAMERS

SPECIAL DECIMAL SIZES

● LIST NO. 550D — STRAIGHT SHANK STRAIGHT FLUTE



| Size | Price Each | Size | Price Each | Size | Price Each | Size | Price Each | Size | Price Each |
|-------|------------|-------|------------|-------|------------|-------|------------|-------|------------|
| .0305 | 21.90 | .0985 | 19.40 | .1365 | 22.80 | .1707 | 22.00 | .2080 | 24.39 |
| .0325 | 21.90 | .0992 | 19.40 | .1370 | 22.80 | .1710 | 22.00 | .2085 | 24.39 |
| .0340 | 21.90 | .1005 | 19.40 | .1375 | 22.80 | .1715 | 22.00 | .2095 | 24.39 |
| .0355 | 21.90 | .1010 | 19.40 | .1377 | 22.80 | .1720 | 22.00 | .2100 | 24.39 |
| .0365 | 21.90 | .1017 | 19.40 | .1380 | 22.80 | .1725 | 22.00 | .2105 | 24.39 |
| .0405 | 21.10 | .1025 | 19.40 | .1385 | 22.80 | .1727 | 22.00 | .2110 | 24.39 |
| .0415 | 21.10 | .1045 | 19.40 | .1390 | 22.80 | .1735 | 22.00 | .2115 | 24.39 |
| .0425 | 21.10 | .1050 | 19.40 | .1395 | 22.80 | .1740 | 22.00 | .2120 | 24.39 |
| .0435 | 21.10 | .1055 | 19.40 | .1397 | 22.80 | .1745 | 22.00 | .2125 | 24.39 |
| .0470 | 21.10 | .1057 | 19.40 | .1400 | 22.80 | .1750 | 22.00 | .2135 | 24.39 |
| .0475 | 21.10 | .1067 | 19.40 | .1402 | 22.80 | .1755 | 22.00 | .2140 | 24.39 |
| .0490 | 21.10 | .1070 | 19.40 | .1410 | 21.00 | .1760 | 22.00 | .2145 | 24.39 |
| .0495 | 21.10 | .1075 | 19.40 | .1415 | 21.00 | .1765 | 22.00 | .2150 | 24.39 |
| .0500 | 21.10 | .1082 | 19.40 | .1420 | 21.00 | .1775 | 22.00 | .2155 | 24.39 |
| .0505 | 21.10 | .1084 | 19.40 | .1421 | 21.00 | .1780 | 22.00 | .2160 | 24.39 |
| .0510 | 21.10 | .1097 | 17.00 | .1425 | 21.00 | .1785 | 22.00 | .2170 | 24.39 |
| .0525 | 21.10 | .1107 | 17.00 | .1427 | 21.00 | .1790 | 22.00 | .2175 | 24.39 |
| .0535 | 21.10 | .1112 | 17.00 | .1430 | 21.00 | .1795 | 22.00 | .2180 | 24.39 |
| .0540 | 21.10 | .1115 | 17.00 | .1432 | 21.00 | .1800 | 22.00 | .2185 | 24.39 |
| .0545 | 21.10 | .1120 | 17.00 | .1435 | 21.00 | .1805 | 22.00 | .2190 | 24.39 |
| .0555 | 21.10 | .1125 | 17.00 | .1445 | 21.00 | .1810 | 22.00 | .2195 | 24.39 |
| .0560 | 21.10 | .1132 | 17.00 | .1450 | 21.00 | .1815 | 22.00 | .2200 | 24.39 |
| .0565 | 21.10 | .1155 | 17.00 | .1455 | 21.00 | .1822 | 22.00 | .2205 | 24.39 |
| .0575 | 21.10 | .1175 | 17.00 | .1460 | 21.00 | .1825 | 22.00 | .2215 | 24.39 |
| .0590 | 21.10 | .1180 | 17.00 | .1465 | 21.00 | .1830 | 22.00 | .2220 | 24.39 |
| .0613 | 21.10 | .1185 | 17.00 | .1475 | 21.00 | .1832 | 22.00 | .2225 | 24.39 |
| .0622 | 21.10 | .1190 | 17.00 | .1480 | 21.00 | .1835 | 22.00 | .2230 | 24.39 |
| .0632 | 19.30 | .1192 | 17.00 | .1485 | 21.00 | .1845 | 22.00 | .2235 | 24.39 |
| .0637 | 19.30 | .1195 | 17.00 | .1490 | 21.00 | .1860 | 22.00 | .2240 | 24.39 |
| .0662 | 19.30 | .1200 | 17.00 | .1500 | 21.00 | .1862 | 24.81 | .2242 | 24.39 |
| .0667 | 19.30 | .1205 | 17.00 | .1505 | 21.00 | .1863 | 24.81 | .2245 | 24.39 |
| .0680 | 19.35 | .1210 | 17.00 | .1510 | 21.00 | .1872 | 24.81 | .2250 | 24.39 |
| .0682 | 19.35 | .1215 | 17.00 | .1512 | 21.00 | .1877 | 24.81 | .2255 | 24.39 |
| .0702 | 19.35 | .1220 | 17.00 | .1515 | 21.00 | .1882 | 24.81 | .2260 | 24.39 |
| .0722 | 19.35 | .1225 | 17.00 | .1525 | 21.00 | .1885 | 24.81 | .2265 | 24.39 |
| .0727 | 19.35 | .1227 | 17.00 | .1530 | 21.00 | .1897 | 24.81 | .2270 | 24.39 |
| .0755 | 19.35 | .1235 | 17.00 | .1535 | 21.00 | .1900 | 24.81 | .2275 | 24.39 |
| .0757 | 19.35 | .1243 | 17.00 | .1545 | 21.00 | .1905 | 24.81 | .2285 | 24.39 |
| .0767 | 19.35 | .1244 | 17.00 | .1550 | 21.00 | .1915 | 24.81 | .2290 | 24.39 |
| .0777 | 19.35 | .1245 | 17.00 | .1552 | 21.00 | .1920 | 24.81 | .2295 | 24.39 |
| .0790 | 19.40 | .1248 | 17.00 | .1555 | 21.00 | .1925 | 24.81 | .2300 | 24.39 |
| .0792 | 19.40 | .1249 | 17.00 | .1557 | 21.00 | .1927 | 24.81 | .2305 | 24.39 |
| .0802 | 19.40 | .1253 | 17.00 | .1580 | 21.00 | .1930 | 24.81 | .2310 | 24.39 |
| .0805 | 19.40 | .1255 | 22.80 | .1582 | 22.00 | .1933 | 24.81 | .2312 | 24.39 |
| .0812 | 19.40 | .1258 | 22.80 | .1583 | 22.00 | .1937 | 24.81 | .2315 | 24.39 |
| .0815 | 19.40 | .1265 | 22.80 | .1585 | 22.00 | .1940 | 24.81 | .2320 | 24.39 |
| .0822 | 19.40 | .1267 | 22.80 | .1595 | 22.00 | .1942 | 24.81 | .2325 | 22.74 |
| .0826 | 19.40 | .1268 | 22.80 | .1600 | 22.00 | .1945 | 24.81 | .2330 | 22.74 |
| .0845 | 19.40 | .1270 | 22.80 | .1605 | 22.00 | .1950 | 24.81 | .2335 | 22.74 |
| .0867 | 19.40 | .1275 | 22.80 | .1615 | 22.00 | .1955 | 24.81 | .2340 | 22.74 |
| .0875 | 19.40 | .1277 | 22.80 | .1620 | 22.00 | .1965 | 24.81 | .2350 | 22.74 |
| .0880 | 19.40 | .1280 | 22.80 | .1625 | 22.00 | .1975 | 24.81 | .2352 | 22.74 |
| .0887 | 19.40 | .1290 | 22.80 | .1630 | 22.00 | .1980 | 24.81 | .2355 | 22.74 |
| .0902 | 19.40 | .1295 | 22.80 | .1635 | 22.00 | .1985 | 24.81 | .2360 | 22.74 |
| .0912 | 19.40 | .1297 | 22.80 | .1640 | 22.00 | .1995 | 24.81 | .2365 | 22.74 |
| .0915 | 19.40 | .1300 | 22.80 | .1645 | 22.00 | .2005 | 24.81 | .2370 | 22.74 |
| .0918 | 19.40 | .1305 | 22.80 | .1650 | 22.00 | .2015 | 24.81 | .2375 | 22.74 |
| .0920 | 19.40 | .1310 | 22.80 | .1655 | 22.00 | .2020 | 24.81 | .2385 | 22.74 |
| .0922 | 19.40 | .1315 | 22.80 | .1665 | 22.00 | .2025 | 24.81 | .2390 | 22.74 |
| .0930 | 19.40 | .1320 | 22.80 | .1670 | 22.00 | .2030 | 24.81 | .2395 | 22.74 |
| .0950 | 19.40 | .1322 | 22.80 | .1675 | 22.00 | .2035 | 24.39 | .2400 | 22.74 |
| .0952 | 19.40 | .1325 | 22.80 | .1680 | 22.00 | .2045 | 24.39 | .2405 | 22.74 |
| .0957 | 19.40 | .1335 | 22.80 | .1685 | 22.00 | .2050 | 24.39 | .2410 | 22.74 |
| .0962 | 19.40 | .1340 | 22.80 | .1690 | 22.00 | .2060 | 24.39 | .2415 | 22.74 |
| .0964 | 19.40 | .1345 | 22.80 | .1695 | 22.00 | .2065 | 24.39 | .2425 | 22.74 |
| .0970 | 19.40 | .1350 | 22.80 | .1700 | 22.00 | .2070 | 24.39 | .2430 | 22.74 |
| .0971 | 19.40 | .1355 | 22.80 | .1705 | 22.00 | .2075 | 24.39 | .2435 | 22.74 |

CHUCKING REAMERS**SPECIAL DECIMAL SIZES**

● LIST NO. 550D — STRAIGHT SHANK STRAIGHT FLUTE



| Size | Price Each | Size | Price Each | Size | Price Each | Size | Price Each | Size | Price Each | Size | Price Each |
|-------|------------|-------|------------|-------|------------|-------|------------|-------|------------|-------|------------|
| .2437 | 22.74 | .3050 | 27.60 | .3714 | 29.10 | .4400 | 32.85 | .5030 | 41.65 | .5680 | 46.59 |
| .2438 | 22.74 | .3060 | 27.60 | .3720 | 29.10 | .4410 | 32.85 | .5040 | 41.65 | .5690 | 46.59 |
| .2440 | 22.74 | .3070 | 27.60 | .3742 | 29.10 | .4420 | 32.85 | .5050 | 41.65 | .5700 | 46.59 |
| .2442 | 22.74 | .3080 | 27.60 | .3747 | 29.10 | .4430 | 32.85 | .5060 | 41.65 | .5710 | 46.59 |
| .2445 | 22.74 | .3090 | 27.60 | .3748 | 29.10 | .4440 | 32.85 | .5070 | 41.65 | .5720 | 46.59 |
| .2447 | 22.74 | .3100 | 27.60 | .3755 | 30.55 | .4450 | 32.85 | .5080 | 41.65 | .5730 | 46.59 |
| .2450 | 22.74 | .3110 | 27.60 | .3780 | 30.55 | .4460 | 32.85 | .5090 | 41.65 | .5740 | 46.59 |
| .2455 | 22.74 | .3112 | 27.95 | .3790 | 30.55 | .4470 | 32.85 | .5100 | 41.65 | .5750 | 46.59 |
| .2465 | 22.74 | .3122 | 27.95 | .3800 | 30.55 | .4480 | 32.85 | .5110 | 41.65 | .5760 | 46.59 |
| .2470 | 22.74 | .3129 | 27.95 | .3810 | 30.55 | .4490 | 32.85 | .5120 | 41.65 | .5770 | 46.59 |
| .2475 | 22.74 | .3130 | 27.95 | .3813 | 30.55 | .4500 | 32.85 | .5130 | 41.65 | .5790 | 46.59 |
| .2482 | 22.74 | .3133 | 27.95 | .3820 | 30.55 | .4510 | 32.85 | .5140 | 41.65 | .5800 | 46.59 |
| .2485 | 22.74 | .3140 | 27.95 | .3830 | 30.55 | .4520 | 32.85 | .5160 | 41.65 | .5810 | 46.59 |
| .2492 | 27.61 | .3145 | 27.95 | .3840 | 30.55 | .4530 | 32.85 | .5170 | 41.65 | .5820 | 46.59 |
| .2497 | 27.61 | .3165 | 27.95 | .3850 | 30.55 | .4533 | 32.85 | .5180 | 41.65 | .5830 | 46.59 |
| .2499 | 27.61 | .3170 | 27.95 | .3870 | 30.55 | .4540 | 32.85 | .5190 | 41.65 | .5840 | 46.59 |
| .2505 | 27.61 | .3180 | 27.95 | .3880 | 30.55 | .4550 | 32.85 | .5200 | 41.65 | .5850 | 46.59 |
| .2512 | 27.61 | .3190 | 27.95 | .3890 | 30.55 | .4560 | 32.85 | .5210 | 41.65 | .5860 | 46.59 |
| .2515 | 27.61 | .3200 | 27.95 | .3900 | 30.55 | .4570 | 32.85 | .5220 | 41.65 | .5870 | 46.59 |
| .2520 | 27.60 | .3210 | 27.95 | .3910 | 30.55 | .4580 | 32.85 | .5230 | 41.65 | .5880 | 46.59 |
| .2530 | 27.60 | .3220 | 27.95 | .3920 | 31.55 | .4590 | 32.85 | .5240 | 41.65 | .5890 | 46.59 |
| .2540 | 27.60 | .3240 | 27.95 | .3930 | 31.55 | .4600 | 32.85 | .5250 | 41.65 | .5900 | 46.59 |
| .2550 | 27.60 | .3250 | 27.95 | .3940 | 31.55 | .4610 | 32.85 | .5260 | 41.65 | .5910 | 46.59 |
| .2560 | 27.60 | .3260 | 27.95 | .3950 | 31.55 | .4620 | 32.85 | .5270 | 41.65 | .5920 | 46.59 |
| .2580 | 27.60 | .3270 | 27.95 | .3960 | 31.55 | .4630 | 32.85 | .5280 | 41.65 | .5940 | 46.59 |
| .2583 | 27.60 | .3280 | 27.95 | .3980 | 31.55 | .4640 | 32.85 | .5290 | 41.65 | .5950 | 46.59 |
| .2590 | 27.60 | .3290 | 27.95 | .3990 | 31.55 | .4650 | 32.85 | .5300 | 41.65 | .5960 | 46.59 |
| .2600 | 27.60 | .3300 | 27.95 | .3992 | 31.55 | .4660 | 32.85 | .5320 | 41.65 | .5970 | 46.59 |
| .2620 | 27.60 | .3310 | 27.95 | .4000 | 31.55 | .4670 | 32.85 | .5330 | 41.65 | .5980 | 46.59 |
| .2630 | 27.60 | .3330 | 27.95 | .4010 | 31.55 | .4680 | 32.85 | .5340 | 41.65 | .5990 | 46.59 |
| .2640 | 27.60 | .3340 | 27.95 | .4020 | 31.55 | .4690 | 32.85 | .5350 | 41.65 | .6000 | 46.59 |
| .2650 | 27.60 | .3350 | 27.95 | .4030 | 31.55 | .4691 | 32.85 | .5360 | 41.65 | .6010 | 46.59 |
| .2670 | 27.60 | .3360 | 27.95 | .4050 | 31.55 | .4700 | 32.85 | .5370 | 41.65 | .6020 | 46.59 |
| .2680 | 27.60 | .3370 | 27.95 | .4060 | 31.55 | .4710 | 32.85 | .5380 | 41.65 | .6030 | 46.59 |
| .2690 | 27.60 | .3380 | 27.95 | .4070 | 31.55 | .4720 | 32.85 | .5390 | 41.65 | .6040 | 46.59 |
| .2700 | 27.60 | .3400 | 29.10 | .4080 | 31.55 | .4730 | 32.85 | .5400 | 41.65 | .6050 | 46.59 |
| .2710 | 27.60 | .3410 | 29.10 | .4090 | 31.55 | .4740 | 32.85 | .5410 | 41.65 | .6060 | 46.59 |
| .2730 | 27.60 | .3420 | 29.10 | .4100 | 31.55 | .4750 | 32.85 | .5420 | 41.65 | .6070 | 46.59 |
| .2740 | 27.60 | .3430 | 29.10 | .4110 | 31.55 | .4752 | 32.85 | .5430 | 41.65 | .6080 | 47.63 |
| .2750 | 27.60 | .3440 | 29.10 | .4120 | 31.55 | .4760 | 32.85 | .5440 | 41.65 | .6100 | 47.63 |
| .2760 | 27.60 | .3450 | 29.10 | .4140 | 31.55 | .4770 | 32.85 | .5450 | 41.65 | .6110 | 47.63 |
| .2780 | 27.60 | .3457 | 29.10 | .4150 | 31.55 | .4780 | 32.85 | .5470 | 41.65 | .6120 | 47.63 |
| .2785 | 27.60 | .3460 | 29.10 | .4160 | 31.55 | .4790 | 32.85 | .5480 | 41.65 | .6130 | 47.63 |
| .2790 | 27.60 | .3470 | 29.10 | .4170 | 31.55 | .4800 | 32.85 | .5490 | 41.65 | .6140 | 47.63 |
| .2800 | 27.60 | .3490 | 29.10 | .4180 | 31.55 | .4810 | 32.85 | .5500 | 41.65 | .6150 | 47.63 |
| .2820 | 27.60 | .3500 | 29.10 | .4190 | 31.55 | .4820 | 32.85 | .5510 | 41.65 | .6160 | 47.63 |
| .2830 | 27.60 | .3510 | 29.10 | .4200 | 31.55 | .4830 | 32.85 | .5520 | 41.65 | .6170 | 47.63 |
| .2840 | 27.60 | .3520 | 29.10 | .4210 | 31.55 | .4840 | 32.85 | .5530 | 41.65 | .6180 | 47.63 |
| .2850 | 27.60 | .3530 | 29.10 | .4220 | 31.55 | .4850 | 32.85 | .5540 | 41.65 | .6190 | 47.63 |
| .2860 | 27.60 | .3540 | 29.10 | .4230 | 31.55 | .4860 | 32.85 | .5550 | 41.65 | .6200 | 47.63 |
| .2870 | 27.60 | .3550 | 29.10 | .4240 | 31.55 | .4870 | 32.85 | .5560 | 46.39 | .6210 | 47.63 |
| .2880 | 27.60 | .3560 | 29.10 | .4250 | 31.55 | .4880 | 32.85 | .5570 | 46.39 | .6220 | 47.63 |
| .2890 | 27.60 | .3570 | 29.10 | .4260 | 31.55 | .4890 | 32.85 | .5580 | 46.39 | .6230 | 47.63 |
| .2910 | 27.60 | .3590 | 29.10 | .4270 | 31.55 | .4900 | 32.85 | .5590 | 46.39 | .6245 | 47.63 |
| .2920 | 27.60 | .3600 | 29.10 | .4280 | 31.55 | .4910 | 32.85 | .5600 | 46.39 | .6255 | 47.63 |
| .2930 | 27.60 | .3610 | 29.10 | .4290 | 31.55 | .4920 | 32.85 | .5610 | 46.39 | .7480 | 60.90 |
| .2940 | 27.60 | .3620 | 29.10 | .4300 | 31.55 | .4930 | 32.85 | .5615 | 46.39 | .7520 | 60.90 |
| .2960 | 27.60 | .3630 | 29.10 | .4310 | 31.55 | .4940 | 32.85 | .5620 | 46.39 | .7530 | 60.90 |
| .2970 | 27.60 | .3640 | 29.10 | .4320 | 31.55 | .4950 | 32.85 | .5630 | 46.59 | .7540 | 61.05 |
| .2980 | 27.60 | .3650 | 29.10 | .4330 | 31.55 | .4960 | 32.85 | .5635 | 46.59 | .7580 | 61.05 |
| .2990 | 27.60 | .3660 | 29.10 | .4340 | 31.55 | .4970 | 32.85 | .5640 | 46.59 | .8780 | 79.95 |
| .3000 | 27.60 | .3670 | 29.10 | .4350 | 31.55 | .5005 | 41.65 | .5650 | 46.59 | .8800 | 88.69 |
| .3010 | 27.60 | .3690 | 29.10 | .4360 | 31.55 | .5015 | 41.65 | .5660 | 46.59 | .9980 | 88.69 |
| .3030 | 27.60 | .3700 | 29.10 | .4380 | 32.85 | .5020 | 41.65 | .5670 | 46.59 | 1.002 | 117.72 |
| .3040 | 27.60 | .3710 | 29.10 | .4390 | 32.85 | | | | | | |

COBALT CHUCKING REAMERS

STRAIGHT SHANK

● LIST NO. 550C — STRAIGHT FLUTE



For reaming high alloy steels, titanium, stainless and other difficult to machine materials.

| Size | Dec. Equiv. | Flute Length | Overall Length | Price Each |
|-------|-------------|--------------|----------------|------------|
| 1/16 | .0625 | 1/2 | 2-1/2 | 16.69 |
| 5/64 | .0781 | 3/4 | 3 | 13.49 |
| 3/32 | .0938 | 3/4 | 3 | 13.49 |
| 7/64 | .1094 | 7/8 | 3-1/2 | 14.03 |
| 1/8 | .1250 | 7/8 | 3-1/2 | 11.20 |
| 9/64 | .1406 | 1 | 4 | 16.75 |
| 5/32 | .1562 | 1 | 4 | 15.05 |
| 11/64 | .1719 | 1-1/8 | 4-1/2 | 17.82 |
| 3/16 | .1875 | 1-1/8 | 4-1/2 | 16.10 |
| 13/64 | .2031 | 1-1/4 | 5 | 21.65 |
| 7/32 | .2188 | 1-1/4 | 5 | 21.65 |
| 15/64 | .2344 | 1-1/2 | 6 | 22.28 |
| 1/4 | .2500 | 1-1/2 | 6 | 19.00 |
| 17/64 | .2656 | 1-1/2 | 6 | 30.32 |
| 9/32 | .2812 | 1-1/2 | 6 | 28.80 |

| Size | Dec. Equiv. | Flute Length | Overall Length | Price Each |
|-------|-------------|--------------|----------------|------------|
| 19/64 | .2969 | 1-1/2 | 6 | 30.30 |
| 5/16 | .3125 | 1-1/2 | 6 | 27.32 |
| 21/64 | .3281 | 1-1/2 | 6 | 32.65 |
| 11/32 | .3438 | 1-1/2 | 6 | 32.65 |
| 23/64 | .3594 | 1-3/4 | 7 | 33.20 |
| 3/8 | .3750 | 1-3/4 | 7 | 29.93 |
| 25/64 | .3906 | 1-3/4 | 7 | 39.10 |
| 13/32 | .4062 | 1-3/4 | 7 | 39.10 |
| 27/64 | .4219 | 1-3/4 | 7 | 39.10 |
| 7/16 | .4375 | 1-3/4 | 7 | 38.50 |
| 29/64 | .4531 | 1-3/4 | 7 | 46.45 |
| 15/32 | .4688 | 1-3/4 | 7 | 46.45 |
| 31/64 | .4844 | 2 | 8 | 46.45 |
| 1/2 | .5000 | 2 | 8 | 44.08 |
| 17/32 | .5312 | 2 | 8 | 52.10 |

| Size | Dec. Equiv. | Flute Length | Overall Length | Price Each |
|-------|-------------|--------------|----------------|------------|
| 9/16 | .5625 | 2 | 8 | 52.10 |
| 19/32 | .5938 | 2 | 8 | 52.10 |
| 5/8 | .6250 | 2-1/4 | 9 | 60.80 |
| 21/32 | .6562 | 2-1/4 | 9 | 68.73 |
| 11/16 | .6875 | 2-1/4 | 9 | 68.73 |
| 23/32 | .7188 | 2-1/4 | 9 | 76.75 |
| 3/4 | .7500 | 2-1/2 | 9-1/2 | 77.15 |
| 25/32 | .7812 | 2-1/2 | 9-1/2 | 83.20 |
| 13/16 | .8125 | 2-1/2 | 9-1/2 | 83.20 |
| 27/32 | .8438 | 2-1/2 | 9-1/2 | 98.45 |
| 7/8 | .8750 | 2-5/8 | 10 | 100.75 |
| 29/32 | .9062 | 2-5/8 | 10 | 108.52 |
| 15/16 | .9375 | 2-5/8 | 10 | 108.52 |
| 31/32 | .9688 | 2-5/8 | 10 | 121.60 |
| 1 | 1.000 | 2-3/4 | 10-1/2 | 122.76 |



CARBIDE TIPPED CHUCKING REAMERS

STRAIGHT SHANK

● LIST NO. CT550 — STRAIGHT FLUTE



For hole reaming in cast iron, heat treated steels and other hard materials.

| Size | Dec. Equiv. | Flute Length | Overall Length | Price Each |
|-------|-------------|--------------|----------------|------------|
| 3/16 | .1875 | 1-1/8 | 4-1/2 | 55.58 |
| 13/64 | .2031 | 1-1/4 | 5 | 55.58 |
| 7/32 | .2188 | 1-1/4 | 5 | 55.58 |
| 15/64 | .2344 | 1-1/2 | 6 | 55.58 |
| 1/4 | .2500 | 1-1/2 | 6 | 55.58 |
| 17/64 | .2656 | 1-1/2 | 6 | 56.90 |
| 9/32 | .2812 | 1-1/2 | 6 | 56.90 |
| 19/64 | .2969 | 1-1/2 | 6 | 56.90 |
| 5/16 | .3125 | 1-1/2 | 6 | 56.90 |
| 21/64 | .3281 | 1-1/2 | 6 | 58.89 |
| 11/32 | .3438 | 1-1/2 | 6 | 58.89 |
| 23/64 | .3594 | 1-3/4 | 7 | 58.95 |
| 3/8 | .3750 | 1-3/4 | 7 | 58.95 |

| Size | Dec. Equiv. | Flute Length | Overall Length | Price Each |
|-------|-------------|--------------|----------------|------------|
| 25/64 | .3906 | 1-3/4 | 7 | 61.65 |
| 13/32 | .4062 | 1-3/4 | 7 | 61.65 |
| 27/64 | .4219 | 1-3/4 | 7 | 65.72 |
| 7/16 | .4375 | 1-3/4 | 7 | 65.72 |
| 29/64 | .4531 | 1-3/4 | 7 | 66.95 |
| 15/32 | .4688 | 1-3/4 | 7 | 66.95 |
| 31/64 | .4844 | 2 | 8 | 72.25 |
| 1/2 | .5000 | 2 | 8 | 72.36 |
| 17/32 | .5312 | 2 | 8 | 74.25 |
| 9/16 | .5625 | 2 | 8 | 74.34 |
| 19/32 | .5938 | 2 | 8 | 77.10 |
| 5/8 | .6250 | 2-1/4 | 9 | 77.20 |
| 21/32 | .6562 | 2-1/4 | 9 | 78.55 |

| Size | Dec. Equiv. | Flute Length | Overall Length | Price Each |
|--------|-------------|--------------|----------------|------------|
| 11/16 | .6875 | 2-1/4 | 9 | 78.54 |
| 3/4 | .7500 | 2-1/2 | 9-1/2 | 82.20 |
| 13/16 | .8125 | 2-1/2 | 9-1/2 | 84.95 |
| 7/8 | .8750 | 2-5/8 | 10 | 88.27 |
| 15/16 | .9375 | 2-5/8 | 10 | 102.95 |
| 1 | 1.0000 | 2-3/4 | 10-1/2 | 107.94 |
| 1-1/16 | 1.0625 | 2-3/4 | 10-1/2 | 116.24 |
| 1-1/8 | 1.1250 | 2-7/8 | 11 | 125.83 |
| 1-3/16 | 1.1875 | 2-7/8 | 11 | 132.25 |
| 1-1/4 | 1.2500 | 3 | 11-1/2 | 139.66 |
| 1-5/16 | 1.3125 | 3 | 11-1/2 | 147.18 |
| 1-3/8 | 1.3750 | 3-1/4 | 12 | 156.00 |
| 1-1/2 | 1.5000 | 3-1/2 | 12-1/2 | 182.60 |



SOLID CARBIDE CHUCKING REAMERS

STRAIGHT SHANK

■ LIST NO. C805 — STRAIGHT FLUTE



| Size | Dec. Equiv. | Flute Length | Overall Length | Price Each |
|-------|-------------|--------------|----------------|------------|
| 1/16 | .0625 | 3/8 | 1-1/2 | 15.20 |
| 5/64 | .0781 | 1/2 | 1-3/4 | 15.65 |
| 3/32 | .0938 | 1/2 | 2 | 17.55 |
| 7/64 | .1094 | 5/8 | 2-1/4 | 19.95 |
| 1/8 | .1250 | 5/8 | 2-1/4 | 21.30 |
| 9/64 | .1406 | 3/4 | 2-1/4 | 23.75 |
| 5/32 | .1562 | 3/4 | 2-1/2 | 25.55 |
| 11/64 | .1719 | 7/8 | 2-3/4 | 27.90 |

| Size | Dec. Equiv. | Flute Length | Overall Length | Price Each |
|-------|-------------|--------------|----------------|------------|
| 3/16 | .1875 | 7/8 | 2-3/4 | 29.70 |
| 13/64 | .2031 | 1 | 3 | 32.35 |
| 7/32 | .2188 | 1 | 3 | 35.66 |
| 15/64 | .2344 | 1 | 3 | 38.20 |
| 1/4 | .2500 | 1 | 3 | 40.95 |
| 17/64 | .2656 | 1-1/8 | 3-1/4 | 41.75 |
| 9/32 | .2812 | 1-1/8 | 3-1/4 | 44.78 |
| 19/64 | .2969 | 1-1/8 | 3-1/4 | 46.90 |

| Size | Dec. Equiv. | Flute Length | Overall Length | Price Each |
|-------|-------------|--------------|----------------|------------|
| 5/16 | .3125 | 1-1/8 | 3-1/4 | 49.92 |
| 21/64 | .3281 | 1-1/4 | 3-1/2 | 52.35 |
| 11/32 | .3438 | 1-1/4 | 3-1/2 | 56.50 |
| 23/64 | .3594 | 1-1/4 | 3-1/2 | 60.05 |
| 3/8 | .3750 | 1-1/4 | 3-1/2 | 65.48 |
| 13/32 | .4062 | 1-1/4 | 3-1/2 | 79.00 |
| 7/16 | .4375 | 1-3/8 | 4 | 88.00 |
| 1/2 | .5000 | 1-1/2 | 4 | 113.50 |

HIGH SPEED STEEL

CHUCKING REAMERS

TAPER SHANK

▶ LIST NO. 530 — STRAIGHT FLUTE



▶ LIST NO. 531 — SPIRAL FLUTE



| Size | Dec. Equiv. | Flute Length | Overall Length | Morse Taper No. | Price Each | |
|-------|-------------|--------------|----------------|-----------------|--------------|--------------|
| | | | | | List No. 530 | List No. 531 |
| 7/32 | .2188 | 1-1/4 | 5 | 1 | — | 38.25 |
| 1/4 | .2500 | 1-1/2 | 6 | 1 | 31.30 | 38.25 |
| "G" | .2610 | 1-1/2 | 6 | 1 | 40.00 | — |
| 17/64 | .2656 | 1-1/2 | 6 | 1 | 38.25 | — |
| 9/32 | .2812 | 1-1/2 | 6 | 1 | 38.25 | 41.20 |
| 5/16 | .3125 | 1-1/2 | 6 | 1 | 38.25 | 41.20 |
| 21/64 | .3281 | 1-1/2 | 6 | 1 | 40.80 | — |
| 11/32 | .3438 | 1-1/2 | 6 | 1 | 38.75 | 41.20 |
| 23/64 | .3594 | 1-3/4 | 7 | 1 | 42.95 | — |
| 3/8 | .3750 | 1-3/4 | 7 | 1 | 39.50 | 42.19 |
| 13/32 | .4062 | 1-3/4 | 7 | 1 | 40.35 | 43.40 |
| 7/16 | .4375 | 1-3/4 | 7 | 1 | 40.35 | 43.40 |
| 15/32 | .4688 | 1-3/4 | 7 | 1 | 45.00 | 45.00 |
| 31/64 | .4844 | 2 | 8 | 1 | 50.00 | — |
| 1/2 | .5000 | 2 | 8 | 1 | 42.00 | 43.40 |
| 33/64 | .5156 | 2 | 8 | 1 | 54.00 | — |
| 17/32 | .5312 | 2 | 8 | 1 | 49.50 | 51.35 |
| 35/64 | .5469 | 2 | 8 | 1 | 54.00 | — |
| 9/16 | .5625 | 2 | 8 | 1 | 49.50 | 51.35 |
| 37/64 | .5781 | 2 | 8 | 1 | 58.50 | — |
| 19/32 | .5938 | 2 | 8 | 1 | 53.50 | 54.50 |
| 5/8 | .6250 | 2-1/4 | 9 | 2 | 51.75 | 54.50 |
| 21/32 | .6562 | 2-1/4 | 9 | 2 | 57.00 | 60.00 |
| 11/16 | .6875 | 2-1/4 | 9 | 2 | 57.00 | 60.00 |

| Size | Dec. Equiv. | Flute Length | Overall Length | Morse Taper No. | Price Each | |
|--------|-------------|--------------|----------------|-----------------|--------------|--------------|
| | | | | | List No. 530 | List No. 531 |
| 45/64 | .7031 | 2-1/4 | 9 | 2 | 69.50 | — |
| 23/32 | .7188 | 2-1/4 | 9 | 2 | 64.95 | 67.00 |
| 47/64 | .7344 | 2-1/2 | 9-1/2 | 2 | 69.50 | — |
| 3/4 | .7500 | 2-1/2 | 9-1/2 | 2 | 60.50 | 67.00 |
| 25/32 | .7812 | 2-1/2 | 9-1/2 | 2 | 70.85 | 77.15 |
| 13/16 | .8125 | 2-1/2 | 9-1/2 | 2 | 70.85 | 77.15 |
| 27/32 | .8438 | 2-1/2 | 9-1/2 | 2 | 84.00 | 88.44 |
| 7/8 | .8750 | 2-5/8 | 10 | 2 | 79.50 | 88.44 |
| 29/32 | .9062 | 2-5/8 | 10 | 2 | 91.50 | 96.70 |
| 15/16 | .9375 | 2-5/8 | 10 | 3 | 87.95 | 96.70 |
| 31/32 | .9688 | 2-5/8 | 10 | 3 | 99.00 | 107.50 |
| 1 | 1.0000 | 2-3/4 | 10-1/2 | 3 | 97.00 | 107.50 |
| 1-1/32 | 1.0312 | 2-3/4 | 10-1/2 | 3 | 118.80 | 131.50 |
| 1-1/16 | 1.0625 | 2-3/4 | 10-1/2 | 3 | 109.00 | 119.00 |
| 1-1/8 | 1.1250 | 2-7/8 | 11 | 3 | 118.00 | 131.70 |
| 1-5/32 | 1.1562 | 2-7/8 | 11 | 3 | 144.00 | 159.00 |
| 1-3/16 | 1.1875 | 2-7/8 | 11 | 3 | 132.25 | 143.30 |
| 1-1/4 | 1.2500 | 3 | 11-1/2 | 4 | 143.20 | 157.50 |
| 1-5/16 | 1.3125 | 3 | 11-1/2 | 4 | 160.25 | 172.50 |
| 1-3/8 | 1.3750 | 3-1/4 | 12 | 4 | 173.00 | 186.50 |
| 1-7/16 | 1.4375 | 3-1/4 | 12 | 4 | 186.00 | 203.50 |
| 1-1/2 | 1.5000 | 3-1/2 | 12-1/2 | 4 | 200.00 | 215.50 |
| 1-3/4 | 1.7500 | 4 | 13-1/2 | 4 | 295.50 | 310.00 |
| 2 | 2.0000 | 4 | 14-1/2 | 4 | 367.50 | 385.00 |

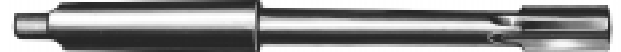
HIGH SPEED STEEL

EXPANSION CHUCKING REAMERS

▶ LIST NO. 572 — STRAIGHT SHANK



▶ LIST NO. 574 — TAPER SHANK



Expansion reamers are designed to slightly enlarge holes for proper fit. The expansion feature allows the reamer to be sharpened repeatedly, then adjusted to maintain the original size.

| Size | Dec. Equiv. | Flute Length | Overall Length | Price Each | | |
|--------|-------------|--------------|----------------|-------------------|-----------------|-------------------|
| | | | | S.S. List No. 572 | Morse Taper No. | T.S. List No. 574 |
| 11/32 | .3438 | 3/4 | 6-3/4 | 81.00 | — | — |
| 3/8 | .3750 | 3/4 | 7 | 76.77 | 1 | 88.37 |
| 13/32 | .4062 | 3/4 | 7 | 79.96 | 1 | 91.98 |
| 7/16 | .4375 | 7/8 | 7 | 83.10 | 1 | 95.56 |
| 15/32 | .4688 | 7/8 | 7 | 86.15 | 1 | 99.16 |
| 1/2 | .5000 | 1 | 8 | 89.27 | 1 | 102.66 |
| 17/32 | .5312 | 1 | 8 | 92.37 | 1 | 106.20 |
| 9/16 | .5625 | 1-1/8 | 8 | 95.50 | 1 | 109.84 |
| 19/32 | .5938 | 1-1/8 | 8 | 98.59 | 1 | 113.40 |
| 5/8 | .6250 | 1-1/4 | 9 | 101.67 | 2 | 117.01 |
| 21/32 | .6562 | 1-1/4 | 9 | 104.56 | 2 | 120.00 |
| 11/16 | .6875 | 1-1/4 | 9 | 107.48 | 2 | 123.60 |
| 23/32 | .7188 | 1-1/4 | 9 | 110.40 | 2 | 123.70 |
| 3/4 | .7500 | 1-3/8 | 9-1/2 | 113.30 | 2 | 130.37 |
| 25/32 | .7812 | 1-3/8 | 9-1/2 | 117.50 | 2 | 135.14 |
| 13/16 | .8125 | 1-3/8 | 9-1/2 | 121.53 | 2 | 139.78 |
| 27/32 | .8438 | 1-3/8 | 9-1/2 | 125.73 | 2 | 144.61 |
| 7/8 | .8750 | 1-1/2 | 10 | 129.80 | 2 | 149.28 |
| 29/32 | .9062 | 1-1/2 | 10 | 134.04 | 2 | 154.20 |
| 15/16 | .9375 | 1-1/2 | 10 | 138.16 | 3 | 158.97 |
| 31/32 | .9688 | 1-1/2 | 10 | 140.04 | 3 | 163.23 |
| 1 | 1.0000 | 1-5/8 | 10-1/2 | 142.15 | 3 | 163.23 |
| 1-1/32 | 1.0312 | 1-5/8 | 10-1/2 | 158.75 | 3 | 182.50 |
| 1-1/16 | 1.0625 | 1-5/8 | 10-1/2 | 158.75 | 3 | 182.61 |

| Size | Dec. Equiv. | Flute Length | Overall Length | Price Each | | |
|---------|-------------|--------------|----------------|-------------------|-----------------|-------------------|
| | | | | S.S. List No. 572 | Morse Taper No. | T.S. List No. 574 |
| 1-3/32 | 1.0938 | 1-3/4 | 10-1/2 | 169.00 | 3 | 199.00 |
| 1-1/8 | 1.1250 | 1-3/4 | 11 | 175.66 | 3 | 201.99 |
| 1-5/32 | 1.1562 | 1-5/8 | 10-1/2 | 192.20 | 3 | 221.00 |
| 1-3/16 | 1.1875 | 1-3/4 | 11 | 192.20 | 3 | 221.03 |
| 1-7/32 | 1.2188 | 1-7/8 | 11 | 215.00 | 4 | 245.00 |
| 1-1/4 | 1.2500 | 1-7/8 | 11-1/2 | 208.94 | 4 | 240.34 |
| 1-5/16 | 1.3125 | 1-7/8 | 11-1/2 | 217.39 | 4 | 250.00 |
| 1-3/8 | 1.3750 | 2 | 12 | 225.00 | 4 | 259.71 |
| 1-7/16 | 1.4375 | 2 | 12 | 234.04 | 4 | 269.26 |
| 1-1/2 | 1.5000 | 2-1/8 | 12-1/2 | 242.49 | 4 | 278.94 |
| 1-9/16 | 1.5625 | 2-1/8 | 12-1/2 | 262.70 | 4 | 279.75 |
| 1-5/8 | 1.6250 | 2-1/4 | 13 | 273.00 | 4 | 282.80 |
| 1-11/16 | 1.6875 | 2-1/4 | 13 | 287.00 | 4 | 308.00 |
| 1-3/4 | 1.7500 | 2-3/8 | 13-1/2 | 299.00 | 5 | 323.50 |
| 1-13/16 | 1.8125 | 2-3/8 | 13-1/2 | 310.50 | 5 | 344.40 |
| 1-7/8 | 1.8750 | 2-1/2 | 14 | 327.50 | 5 | 358.50 |
| 1-15/16 | 1.9375 | 2-1/2 | 14 | 361.00 | 5 | 406.00 |
| 2 | 2.0000 | 2-1/2 | 14 | 369.00 | 5 | 427.00 |
| 2-1/16 | 2.0125 | 2-3/4 | 14-1/2 | — | 5 | 439.50 |
| 2-1/8 | 2.1250 | 2-3/4 | 14-1/2 | — | 5 | 443.80 |
| 2-1/4 | 2.2500 | 2-3/4 | 14-1/2 | — | 5 | 494.20 |
| 2-3/8 | 2.3750 | 2-3/4 | 15 | — | 5 | 562.80 |
| 2-1/2 | 2.5000 | 3 | 15 | — | 5 | 597.00 |
| 3 | 3.0000 | 3 | 16 | — | 5 | 745.00 |

Maximum expansion to 1/2" – approximately .006, to 1" – approximately .010, to 1-1/2" – approximately .012.

JOBBER'S REAMERS

TAPER SHANK

- ▶ LIST NO. 578 — STRAIGHT FLUTE
- ▶ LIST NO. 579 — SPIRAL FLUTE



For use in all types of materials where a long flute is required.

| Size | Dec. Equiv. | Flute Length | Overall Length | Morse Taper No. | Price Each | |
|-------|-------------|--------------|----------------|-----------------|--------------|--------------|
| | | | | | List No. 578 | List No. 579 |
| 1/4 | .2500 | 2 | 5-3/16 | 1 | 54.55 | 62.73 |
| 9/32 | .2812 | 2 | 5-3/16 | 1 | 57.45 | — |
| 5/16 | .3125 | 2-1/4 | 5-1/2 | 1 | 56.80 | 65.32 |
| 11/32 | .3438 | 2-1/4 | 5-1/2 | 1 | 60.43 | — |
| 3/8 | .3750 | 2-1/2 | 5-13/16 | 1 | 65.71 | — |
| 13/32 | .4062 | 2-1/2 | 5-13/16 | 1 | 68.58 | — |
| 7/16 | .4375 | 2-3/4 | 6-1/8 | 1 | 74.20 | 85.33 |
| 15/32 | .4688 | 2-3/4 | 6-1/8 | 1 | 69.32 | — |
| 1/2 | .5000 | 3 | 6-7/16 | 1 | 74.20 | 85.33 |
| 17/32 | .5312 | 3 | 6-7/16 | 1 | 76.61 | — |
| 9/16 | .5625 | 3-1/4 | 6-3/4 | 1 | 84.00 | — |
| 19/32 | .5938 | 3-1/4 | 6-3/4 | 1 | 85.90 | — |
| 5/8 | .6250 | 3-1/2 | 7-9/16 | 2 | 87.52 | — |
| 21/32 | .6562 | 3-1/2 | 7-9/16 | 2 | 92.98 | 110.38 |
| 11/16 | .6875 | 3-7/8 | 8 | 2 | 102.00 | 117.30 |
| 23/32 | .7188 | 3-7/8 | 8 | 2 | 84.39 | — |

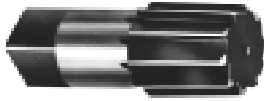
| Size | Dec. Equiv. | Flute Length | Overall Length | Morse Taper No. | Price Each | |
|--------|-------------|--------------|----------------|-----------------|--------------|--------------|
| | | | | | List No. 578 | List No. 579 |
| 3/4 | .7500 | 4-3/16 | 8-3/8 | 2 | 102.00 | 117.30 |
| 25/32 | .7812 | 4-3/16 | 8-3/8 | 2 | 96.64 | — |
| 13/16 | .8125 | 4-9/16 | 8-13/16 | 2 | 114.55 | 131.73 |
| 27/32 | .8438 | 4-7/8 | 9-13/16 | 2 | 103.98 | — |
| 7/8 | .8750 | 4-7/8 | 9-13/16 | 2 | 128.20 | — |
| 15/16 | .9375 | 5-1/8 | 10 | 3 | 135.00 | — |
| 1 | 1.0000 | 5-7/16 | 10-3/8 | 3 | 146.60 | 177.96 |
| 1-1/16 | 1.0625 | 5-5/8 | 10-5/8 | 3 | 155.95 | — |
| 1-1/8 | 1.1250 | 5-13/16 | 10-7/8 | 3 | 175.10 | 190.00 |
| 1-3/16 | 1.1875 | 6 | 11-1/8 | 3 | 195.00 | 205.00 |
| 1-1/4 | 1.2500 | 6-1/8 | 12-9/16 | 4 | 200.00 | — |
| 1-5/16 | 1.3125 | 6-1/4 | 12-11/16 | 4 | 210.00 | — |
| 1-3/8 | 1.3750 | 6-5/16 | 12-13/16 | 4 | 225.00 | — |
| 1-7/16 | 1.4375 | 6-7/16 | 13 | 4 | 280.45 | — |
| 1-1/2 | 1.5000 | 6-1/2 | 13-1/8 | 4 | 248.00 | 285.20 |

HIGH SPEED STEEL

TAPER PIPE REAMERS

For reaming holes to be tapped with taper pipe taps.
These reamers are tapered 3/4" to the foot.

- ▶ LIST NO. 566 — STRAIGHT FLUTE



- ▶ LIST NO. 567 — SPIRAL FLUTE



| Size | Diameter | | Flute Length | Overall Length | Shank Size | Price Each | |
|-------|-----------|-----------|--------------|----------------|------------|--------------|--------------|
| | Small End | Large End | | | | List No. 566 | List No. 567 |
| 1/16 | .2450 | .2910 | 3/4 | 2 | — | 59.00 | 59.00 |
| 1/8 | .3160 | .3620 | 3/4 | 2-1/8 | .4375 | 41.50 | 48.00 |
| 1/4 | .4060 | .4720 | 1-1/16 | 2-7/16 | .5625 | 47.00 | 55.00 |
| 3/8 | .5400 | .6060 | 1-1/16 | 2-9/16 | .7000 | 53.40 | 62.80 |
| 1/2 | .6650 | .7510 | 1-3/8 | 3-1/8 | .6875 | 67.50 | 79.25 |
| 3/4 | .8760 | .9620 | 1-3/8 | 3-1/4 | .9063 | 71.50 | 110.00 |
| 1 | 1.1030 | 1.2120 | 1-3/4 | 3-3/4 | 1.1250 | 133.45 | 156.85 |
| 1-1/4 | 1.4440 | 1.5530 | 1-3/4 | 4 | 1.3125 | 200.60 | 235.90 |
| 1-1/2 | 1.6840 | 1.7930 | 1-3/4 | 4-1/4 | 1.5000 | 253.30 | 298.00 |
| 2 | 2.1590 | 2.2680 | 1-3/4 | 4-1/2 | 1.8750 | 338.00 | 398.00 |
| 2-1/2 | 2.5610 | 2.7220 | 2-5/8 | 5-1/2 | 2.2050 | 607.50 | 675.00 |
| 3 | 3.2020 | 3.3800 | 2-3/4 | 6 | 2.6250 | 796.00 | 885.00 |

HIGH SPEED STEEL

TAPER PIN REAMERS

- ▶ LIST NO. 556 — STRAIGHT FLUTE



For reaming in mild steel.

- ▶ LIST NO. 557 — SPIRAL FLUTE



For reaming in lower ranges of BHN hardness.

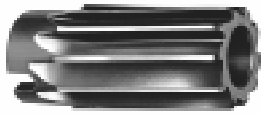
- ▶ LIST NO. 558 — HELICAL FLUTE



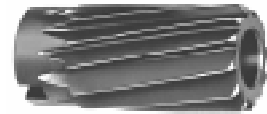
For machine reaming of holes for taper pins.
High helix flute design eases chip ejection.

| Size | Diameter | | Flute Length | Overall Length | Shank Size | Price Each | | |
|------|-----------|-----------|--------------|----------------|------------|--------------|--------------|--------------|
| | Small End | Large End | | | | List No. 556 | List No. 557 | List No. 558 |
| 7/0 | .0497 | .0666 | 13/16 | 1-13/16 | 5/64 | 39.00 | 40.80 | 36.38 |
| 6/0 | .0611 | .0806 | 15/16 | 1-15/16 | 3/32 | 39.00 | 40.80 | 34.00 |
| 5/0 | .0719 | .0966 | 1-3/16 | 2-3/16 | 7/64 | 35.78 | 39.00 | 35.20 |
| 4/0 | .0869 | .1142 | 1-5/16 | 2-5/16 | 1/8 | 35.78 | 39.00 | 35.20 |
| 3/0 | .1029 | .1302 | 1-5/16 | 2-5/16 | 9/64 | 35.78 | 39.00 | 31.70 |
| 2/0 | .1137 | .1462 | 1-9/16 | 2-9/16 | 5/32 | 32.00 | 34.00 | 30.55 |
| 0 | .1287 | .1638 | 1-11/16 | 2-15/16 | 11/64 | 30.60 | 33.00 | 31.85 |
| 1 | .1447 | .1798 | 1-11/16 | 2-15/16 | 3/16 | 30.00 | 33.20 | 33.60 |
| 2 | .1605 | .2008 | 1-15/16 | 3-3/16 | 13/64 | 30.00 | 33.50 | 38.20 |
| 3 | .1813 | .2294 | 2-5/16 | 3-11/16 | 15/64 | 30.00 | 33.50 | 39.45 |
| 4 | .2071 | .2604 | 2-9/16 | 4-1/16 | 17/64 | 33.20 | 36.15 | 48.00 |
| 5 | .2409 | .2994 | 2-13/16 | 4-5/16 | 5/16 | 35.75 | 39.00 | 51.23 |
| 6 | .2773 | .3540 | 3-11/16 | 5-7/16 | 23/64 | 43.15 | 47.75 | 60.25 |
| 7 | .3297 | .4220 | 4-7/16 | 6-5/16 | 13/32 | 55.30 | 60.20 | 72.36 |
| 8 | .3971 | .5050 | 5-3/16 | 7-3/16 | 7/16 | 71.00 | 77.80 | 84.00 |
| 9 | .4805 | .6066 | 6-1/16 | 8-5/16 | 9/16 | 86.40 | 94.00 | 90.15 |
| 10 | .5799 | .7216 | 6-13/16 | 9-5/16 | 5/8 | 95.00 | 104.23 | 120.00 |
| 11 | .7060 | .8780 | 8-1/4 | 11-1/4 | 11/16 | 204.00 | 238.00 | 265.00 |
| 12 | .8420 | 1.0500 | 10 | 13-5/8 | 3/4 | 280.00 | 289.00 | 315.00 |
| 13 | 1.0090 | 1.2590 | 12 | 16 | 1-1/16 | 446.00 | 476.00 | 586.00 |
| 14 | 1.2500 | 1.5420 | 14 | 18-1/4 | 1-3/8 | 665.00 | 704.00 | 779.00 |

SHELL REAMERS



- ▶ LIST NO. 560 — STRAIGHT FLUTE
- ▶ LIST NO. 561 — SPIRAL FLUTE



To be used with shell reamer arbors, listed below. One size arbor fits a range of sizes.

| Size | Overall Length | Hole Diameter | Price Each | |
|---------|----------------|---------------|-----------------------|---------------------|
| | | | Straight List No. 560 | Spiral List No. 561 |
| 3/4 | 2-1/4 | 3/8 | 93.00 | 107.00 |
| 13/16 | 2-1/2 | 1/2 | 97.20 | 112.00 |
| 7/8 | 2-1/2 | 1/2 | 99.00 | 115.00 |
| 29/32 | 2-1/2 | 1/2 | 109.50 | — |
| 15/16 | 2-1/2 | 1/2 | 102.50 | 119.00 |
| 1 | 2-1/2 | 1/2 | 105.00 | 122.35 |
| 1-1/64 | 2-3/4 | 5/8 | 117.50 | — |
| 1-1/16 | 2-3/4 | 5/8 | 113.70 | 131.50 |
| 1-3/32 | 2-3/4 | 5/8 | 125.00 | — |
| 1-1/8 | 2-3/4 | 5/8 | 120.57 | 137.00 |
| 1-3/16 | 2-3/4 | 5/8 | 125.00 | 142.50 |
| 1-1/4 | 2-3/4 | 5/8 | 127.00 | 147.95 |
| 1-9/32 | 3 | 5/8 | 145.80 | — |
| 1-5/16 | 3 | 3/4 | 134.60 | 154.30 |
| 1-11/32 | 3 | 3/4 | 157.00 | — |
| 1-3/8 | 3 | 3/4 | 143.25 | 163.60 |
| 1-13/32 | 3 | 3/4 | 158.00 | — |
| 1-7/16 | 3 | 3/4 | 157.30 | 173.00 |
| 1-15/32 | 3 | 3/4 | 169.77 | — |
| 1-1/2 | 3 | 3/4 | 159.50 | 182.90 |
| 1-9/16 | 3 | 3/4 | 176.12 | 205.00 |
| 1-19/32 | 3 | 3/4 | 195.00 | — |
| 1-5/8 | 3 | 3/4 | 188.35 | 223.65 |
| 1-21/32 | 3-1/2 | 1 | 195.00 | — |
| 1-11/16 | 3-1/2 | 1 | 206.90 | 245.60 |
| 1-3/4 | 3-1/2 | 1 | 219.50 | 259.75 |
| 1-23/32 | 3-1/2 | 1 | 248.00 | — |
| 1-13/16 | 3-1/2 | 1 | 234.00 | 278.28 |
| 1-25/32 | 3-1/2 | 1 | 255.00 | — |
| 1-27/32 | 3-1/2 | 1 | 270.00 | — |
| 1-7/8 | 3-1/2 | 1 | 249.50 | 295.00 |
| 1-29/32 | 3-1/2 | 1 | 295.00 | — |
| 1-15/16 | 3-1/2 | 1 | 265.00 | 314.60 |
| 1-31/32 | 3-1/2 | 1 | 278.00 | — |

| Size | Overall Length | Hole Diameter | Price Each | |
|---------|----------------|---------------|-----------------------|---------------------|
| | | | Straight List No. 560 | Spiral List No. 561 |
| 2 | 3-1/2 | 1 | 275.00 | 323.50 |
| 2-1/16 | 3-3/4 | 1-1/4 | 291.60 | 353.20 |
| 2-1/8 | 3-3/4 | 1-1/4 | 314.60 | 370.32 |
| 2-3/16 | 3-3/4 | 1-1/4 | 330.75 | 394.09 |
| 2-1/4 | 3-3/4 | 1-1/4 | 345.30 | 405.00 |
| 2-5/16 | 3-3/4 | 1-1/4 | 355.00 | 440.00 |
| 2-3/8 | 3-3/4 | 1-1/4 | 363.00 | 445.50 |
| 2-7/16 | 3-3/4 | 1-1/4 | 406.35 | 477.00 |
| 2-1/2 | 3-3/4 | 1-1/4 | 414.50 | 477.00 |
| 2-9/16 | 4 | 1-1/2 | 432.00 | 479.00 |
| 2-5/8 | 4 | 1-1/2 | 460.00 | 496.80 |
| 2-11/16 | 4 | 1-1/2 | 488.70 | 514.35 |
| 2-3/4 | 4 | 1-1/2 | 513.00 | 557.50 |
| 2-13/16 | 4 | 1-1/2 | 542.70 | 599.00 |
| 2-7/8 | 4 | 1-1/2 | 573.75 | 619.60 |
| 2-15/16 | 4 | 1-1/2 | 605.50 | 650.00 |
| 3 | 4 | 1-1/2 | 635.85 | 685.80 |
| 3-1/16 | 4-1/2 | 1-3/4 | 805.95 | 835.65 |
| 3-1/8 | 4-1/2 | 1-3/4 | 974.70 | 985.00 |
| 3-3/16 | 4-1/2 | 1-3/4 | 1007.00 | 1037.00 |
| 3-1/4 | 4-1/2 | 1-3/4 | 1039.50 | 1088.00 |
| 3-5/16 | 4-1/2 | 1-3/4 | 1075.00 | 1127.00 |
| 3-3/8 | 4-1/2 | 1-3/4 | 1111.00 | 1167.75 |
| 3-7/16 | 4-1/2 | 1-3/4 | 1143.50 | 1200.00 |
| 3-1/2 | 4-1/2 | 1-3/4 | 1174.50 | 1232.50 |
| 3-9/16 | 5 | 2 | 1206.00 | 1264.95 |
| 3-5/8 | 5 | 2 | 1235.00 | 1296.00 |
| 3-11/16 | 5 | 2 | 1266.00 | 1329.75 |
| 3-3/4 | 5 | 2 | 1300.00 | 1362.00 |
| 3-13/16 | 5 | 2 | 1350.00 | 1413.00 |
| 3-7/8 | 5 | 2 | 1396.00 | 1465.00 |
| 3-15/16 | 5 | 2 | 1438.00 | 1511.00 |
| 4 | 5 | 2 | 1485.00 | 1557.00 |

▶ SHELL REAMER ARBORS

STRAIGHT SHANK



TAPER SHANK



HARDENED AND GROUND

| Size | Fits Reamer Sizes | | Arbor Dia. | Overall Length | Straight Shank | | | Taper Shank | | |
|------|-------------------|---------|------------|----------------|----------------|----------|------------|-----------------|----------|------------|
| | Smallest | Largest | | | Shank Size | Tool No. | Price Each | Morse Taper No. | Tool No. | Price Each |
| 4 | 21/32 | 25/32 | 3/8 | 9 | 1/2 | SR4S | 78.00 | 2 | SR4T | 93.00 |
| 5 | 13/16 | 1-1/32 | 1/2 | 9-1/2 | 5/8 | SR5S | 87.00 | 2 | SR5T | 111.00 |
| 6 | 1-1/16 | 1-9/32 | 5/8 | 10 | 3/4 | SR6S | 96.00 | 3 | SR6T | 120.00 |
| 7 | 1-5/16 | 1-21/32 | 3/4 | 11 | 7/8 | SR7S | 105.00 | 3 | SR7T | 132.00 |
| 8 | 1-11/16 | 2 | 1 | 12 | 1-1/8 | SR8S | 117.00 | 4 | SR8T | 147.00 |
| 9 | 2-1/16 | 2-1/2 | 1-1/4 | 13 | 1-3/8 | SR9S | 141.00 | 4 | SR9T | 165.00 |
| 10 | 2-9/16 | 3 | 1-1/2 | 14 | 1-5/8 | SR10S | 181.00 | 5 | SR10T | 189.00 |
| 11 | 3-1/16 | 3-1/2 | 1-3/4 | 15 | 2 | SR11S | 255.00 | 5 | SR11T | 265.00 |
| 12 | 3-9/16 | 4 | 2 | 16 | 2-1/8 | SR12S | 357.00 | 5 | SR12T | 369.00 |

HAND EXPANSION REAMERS

► LIST NO. 576 — STRAIGHT FLUTE



► LIST NO. 577 — SPIRAL FLUTE



| Recommended Expansion Limits: | | |
|-------------------------------|-----------------|------|
| Sizes | 1/4 to 21/32 | .010 |
| Sizes | 11/16 to 1 | .013 |
| Sizes | 1-1/16 to 1-1/2 | .015 |
| Sizes | 1-9/16 to 2 | .017 |

These reamers are used to enlarge holes by a few thousandths. The pilots and guides of these reamers are ground under size to allow smooth entrance. The spiral flute style is especially suited for use in holes where the cut is interrupted by a longitudinal slot or keyway.

| Size | Dec. Equiv. | Flute Length | Overall Length | Price Each | |
|-------|-------------|--------------|----------------|--------------|--------------|
| | | | | List No. 576 | List No. 577 |
| 1/4 | .2500 | 1-7/16 | 4-1/4 | 85.00 | 89.25 |
| 5/16 | .3125 | 1-3/4 | 4-1/2 | 87.00 | 91.98 |
| 3/8 | .3750 | 1-3/4 | 5 | 99.50 | 103.95 |
| 13/32 | .4062 | 1-3/4 | 5 | 102.30 | 107.40 |
| 7/16 | .4375 | 1-3/4 | 5 | 103.95 | 109.15 |
| 15/32 | .4688 | 1-13/16 | 5-1/2 | 105.45 | 110.72 |
| 1/2 | .5000 | 1-13/16 | 5-1/2 | 104.40 | 109.62 |
| 17/32 | .5312 | 2-1/8 | 6 | 110.70 | 116.24 |
| 9/16 | .5625 | 2-1/8 | 6 | 114.00 | 119.70 |
| 5/8 | .6250 | 2-1/2 | 6-1/2 | 123.50 | 129.15 |
| 11/16 | .6875 | 2-1/2 | 6-3/4 | 141.00 | 148.05 |
| 3/4 | .7500 | 2-11/16 | 7-1/16 | 156.00 | 163.80 |
| 13/16 | .8125 | 3-1/16 | 7-9/16 | 175.50 | 184.28 |
| 7/8 | .8750 | 3-5/16 | 8 | 189.00 | 198.45 |
| 15/16 | .9375 | 3-9/16 | 8-3/8 | 216.00 | 226.80 |

| Size | Dec. Equiv. | Flute Length | Overall Length | Price Each | |
|--------|-------------|--------------|----------------|--------------|--------------|
| | | | | List No. 576 | List No. 577 |
| 1 | 1.0000 | 3-3/4 | 8-7/8 | 230.00 | 241.50 |
| 1-1/16 | 1.0625 | 4 | 9-3/16 | 240.00 | 252.00 |
| 1-1/8 | 1.1250 | 4-1/8 | 9-1/2 | 260.00 | 273.00 |
| 1-3/16 | 1.1875 | 4-1/4 | 9-7/8 | 265.00 | 278.25 |
| 1-1/4 | 1.2500 | 4-3/8 | 10-1/4 | 272.00 | 285.60 |
| 1-5/16 | 1.3125 | 4-1/2 | 10-5/8 | 285.00 | 299.25 |
| 1-3/8 | 1.3750 | 4-9/16 | 11 | 310.00 | 325.50 |
| 1-7/16 | 1.4375 | 4-3/4 | 11-3/8 | 340.00 | 357.00 |
| 1-1/2 | 1.5000 | 4-13/16 | 11-5/8 | 390.00 | 409.50 |
| 1-9/16 | 1.5625 | 4-13/16 | 11-7/8 | 411.00 | 431.55 |
| 1-5/8 | 1.6250 | 4-7/8 | 12 | 422.00 | 443.10 |
| 1-3/4 | 1.7500 | 5 | 12-3/8 | 486.00 | 510.30 |
| 1-7/8 | 1.8750 | 5 | 12-3/4 | 530.00 | 556.50 |
| 2 | 2.0000 | 5 | 13-1/16 | 620.00 | 651.00 |

SETS

SET NO. 576S

5 Piece Straight Flute Set
 Contains 1 Piece of Each:
 1/4, 3/8, 1/2, 5/8, 3/4
 Supplied in wood block
SET PRICE — \$575.00

SET NO. 577S

5 Piece Spiral Flute Set
 Contains 1 Piece of Each:
 1/4, 3/8, 1/2, 5/8, 3/4
 Supplied in wood block
SET PRICE — \$599.00

ADJUSTABLE HAND REAMERS

► LIST NO. 570



Blades are adjusted by loosening one nut and tightening the other. Each reamer expands to the next size.

| Size | Range of Adjustment | Blade Length | Overall Length | Price Each |
|------|---------------------|--------------|----------------|------------|
| 8/A | 1/4 to 9/32 | 1-11/32 | 3-1/4 | 58.92 |
| 7/A | 9/32 to 5/16 | 1-11/32 | 3-1/2 | 58.92 |
| 6/A | 5/16 to 11/32 | 1-1/2 | 4-1/8 | 58.92 |
| 5/A | 11/32 to 3/8 | 1-1/2 | 4-3/8 | 58.92 |
| 4/A | 3/8 to 13/32 | 1-1/2 | 4-3/4 | 60.90 |
| 3/A | 13/32 to 7/16 | 1-1/2 | 5 | 67.40 |
| 2/A | 7/16 to 15/32 | 1-5/8 | 5-1/4 | 67.40 |
| A | 15/32 to 17/32 | 1-5/8 | 5-1/2 | 71.44 |
| B | 17/32 to 19/32 | 1-13/16 | 5-3/4 | 71.44 |
| C | 19/32 to 21/32 | 2-1/16 | 6-1/2 | 74.33 |
| D | 21/32 to 23/32 | 2-3/16 | 6-3/4 | 77.81 |

| Size | Range of Adjustment | Blade Length | Overall Length | Price Each |
|------|---------------------|--------------|----------------|------------|
| E | 23/32 to 25/32 | 2-1/2 | 7 | 81.92 |
| F | 25/32 to 27/32 | 2-5/8 | 7-3/8 | 84.55 |
| G | 27/32 to 15/16 | 3 | 8 | 88.76 |
| H | 15/16 to 1-1/16 | 3-1/4 | 9 | 93.64 |
| I | 1-1/16 to 1-3/16 | 3-3/8 | 10 | 114.35 |
| J | 1-3/16 to 1-11/32 | 3-7/8 | 11 | 135.40 |
| K | 1-11/32 to 1-1/2 | 4-1/4 | 12 | 175.88 |
| L | 1-1/2 to 1-13/16 | 4-7/16 | 14 | 214.40 |
| M | 1-13/16 to 2-7/32 | 5 | 16 | 272.17 |
| N | 2-7/32 to 2-3/4 | 4-13/16 | 18 | 479.38 |
| O | 2-3/4 to 3-11/32 | 5-3/16 | 20 | 659.20 |

SETS

SET NO. 570A

8 Piece Set
 Contains 1 Piece of Each:
 A thru H.
 Supplied in wood case.
SET PRICE — \$649.99

SET NO. 570B

4 Piece Set
 Contains 1 Piece of Each:
 8A thru 5A.
 Supplied in wood case.
SET PRICE — \$249.00

SET NO. 570C

11 Piece Set
 Contains 1 Piece of Each:
 A thru K.
 Supplied in wood case.
SET PRICE — \$1075.00

HAND REAMERS

► LIST NO. 564 — STRAIGHT FLUTE



► LIST NO. 565 — SPIRAL FLUTE



For finishing of holes by hand. Square end can be held in a vise wrench or tap wrench. Spiral flute style drives chips forward.

| Size | Dec. Equiv. | Flute Length | Overall Length | Price Each | |
|-------|-------------|--------------|----------------|--------------|--------------|
| | | | | List No. 564 | List No. 565 |
| 3/64 | .0469 | 1 | 2 | 41.95 | 45.98 |
| 1/16 | .0625 | 1 | 2 | 41.95 | 45.98 |
| 5/64 | .0781 | 1 | 2 | 41.95 | 45.98 |
| 3/32 | .0938 | 1-1/4 | 2-1/2 | 41.95 | 45.98 |
| 7/64 | .1094 | 1-1/4 | 2-1/2 | 41.95 | 45.98 |
| 1/8 | .1250 | 1-1/2 | 3 | 38.50 | 46.20 |
| 9/64 | .1406 | 1-5/8 | 3-1/4 | 43.70 | 46.20 |
| 5/32 | .1560 | 1-5/8 | 3-1/4 | 43.70 | 46.20 |
| 11/64 | .1719 | 1-3/4 | 3-1/2 | 43.70 | — |
| 3/16 | .1875 | 1-3/4 | 3-1/2 | 41.21 | 48.16 |
| 7/32 | .2188 | 1-7/8 | 3-3/4 | 46.20 | 50.00 |
| 15/64 | .2344 | 2 | 4 | 46.20 | 50.00 |
| 1/4 | .2500 | 2 | 4 | 43.85 | 50.00 |
| 9/32 | .2812 | 2-1/8 | 4-1/4 | 49.50 | 58.25 |
| 19/64 | .2969 | 2-1/4 | 4-1/2 | 49.50 | — |
| 5/16 | .3125 | 2-1/4 | 4-1/2 | 47.95 | 55.00 |
| 11/32 | .3438 | 2-3/8 | 4-3/4 | 57.85 | 65.45 |
| 23/64 | .3594 | 2-1/2 | 5 | 57.85 | 65.45 |
| 3/8 | .3750 | 2-1/2 | 5 | 55.00 | 62.00 |
| 25/64 | .3906 | 2-5/8 | 5-1/4 | 62.80 | 65.00 |
| 13/32 | .4062 | 2-5/8 | 5-1/4 | 62.80 | 71.75 |
| 27/64 | .4219 | 2-3/4 | 5-1/2 | 62.80 | 71.75 |
| 7/16 | .4375 | 2-3/4 | 5-1/2 | 62.80 | 68.85 |
| 29/64 | .4531 | 2-7/8 | 5-3/4 | 69.50 | 77.70 |
| 15/32 | .4688 | 2-7/8 | 5-3/4 | 69.50 | 77.70 |
| 31/64 | .4844 | 3 | 6 | 69.50 | 77.70 |
| 1/2 | .5000 | 3 | 6 | 67.00 | 73.90 |
| 17/32 | .5312 | 3-1/8 | 6-1/4 | 76.75 | 86.65 |
| 35/64 | .5469 | 3-1/4 | 6-1/2 | 76.75 | 86.85 |
| 9/16 | .5625 | 3-1/4 | 6-1/2 | 76.75 | 86.65 |
| 37/64 | .5781 | 3-3/8 | 6-3/4 | 87.95 | 96.50 |
| 19/32 | .5938 | 3-3/8 | 6-3/4 | 87.95 | 96.50 |
| 39/64 | .6094 | 3-1/2 | 7 | 87.95 | 96.50 |
| 5/8 | .6250 | 3-1/2 | 7 | 82.90 | 92.50 |
| 41/64 | .6406 | 3-11/16 | 7-3/8 | 82.90 | 92.50 |

| Size | Dec. Equiv. | Flute Length | Overall Length | Price Each | |
|---------|-------------|--------------|----------------|--------------|--------------|
| | | | | List No. 564 | List No. 565 |
| 21/32 | .6562 | 3-11/16 | 7-3/8 | 96.30 | 106.00 |
| 43/64 | .6719 | 3-7/8 | 7-3/4 | 96.30 | 106.00 |
| 11/16 | .6875 | 3-7/8 | 7-3/4 | 96.30 | 106.00 |
| 45/64 | .7031 | 4-1/16 | 8-1/8 | 90.95 | 101.00 |
| 23/32 | .7188 | 4-1/16 | 8-1/8 | 102.20 | 105.65 |
| 47/64 | .7344 | 4-3/16 | 8-3/8 | — | 105.65 |
| 3/4 | .7500 | 4-3/16 | 8-3/8 | 102.20 | 107.00 |
| 49/64 | .7656 | 4-3/16 | 8-3/8 | — | 107.00 |
| 25/32 | .7812 | 4-3/8 | 8-3/4 | 102.20 | 107.00 |
| 51/64 | .7969 | 4-9/16 | 9-1/8 | 119.65 | 126.50 |
| 13/16 | .8125 | 4-9/16 | 9-1/8 | 117.65 | 126.50 |
| 53/64 | .8281 | 4-9/16 | 9-1/8 | 117.65 | 126.50 |
| 27/32 | .8438 | 4-11/16 | 9-3/8 | 117.65 | 126.50 |
| 7/8 | .8750 | 4-7/8 | 9-3/4 | 117.65 | 126.50 |
| 57/64 | .8906 | 5 | 10 | 117.65 | 126.50 |
| 29/32 | .9062 | 5 | 10 | 133.00 | 141.95 |
| 59/64 | .9219 | 5-1/8 | 10-1/4 | 133.00 | 141.95 |
| 15/16 | .9375 | 5-1/8 | 10-1/4 | 133.00 | 141.95 |
| 31/32 | .9688 | 5-5/16 | 10-3/8 | 135.00 | 141.95 |
| 1 | 1.0000 | 5-7/16 | 10-7/8 | 133.00 | 141.95 |
| 1-1/16 | 1.0625 | 5-5/8 | 11-1/4 | 142.50 | 156.00 |
| 1-1/8 | 1.1250 | 5-13/16 | 11-5/8 | 174.50 | 191.00 |
| 1-3/16 | 1.1875 | 6 | 12 | 176.85 | 191.00 |
| 1-1/4 | 1.2500 | 6-1/8 | 12-1/4 | 211.40 | 235.00 |
| 1-5/16 | 1.3125 | 6-1/4 | 12-1/2 | 217.30 | 235.00 |
| 1-3/8 | 1.3750 | 6-5/16 | 12-5/8 | 250.50 | 268.80 |
| 1-7/16 | 1.4375 | 6-7/16 | 12-7/8 | 256.70 | 277.80 |
| 1-1/2 | 1.5000 | 6-1/2 | 13 | 295.40 | 322.00 |
| 1-19/32 | 1.5938 | 6-1/2 | 13 | 300.00 | — |
| 1-11/16 | 1.6875 | 6-3/4 | 13-1/2 | 303.25 | 328.75 |
| 1-3/4 | 1.7500 | 6-3/4 | 13-1/2 | 499.00 | — |
| 1-13/16 | 1.8125 | 7 | 13-3/4 | 499.00 | — |
| 1-15/16 | 1.9375 | 7 | 14 | 499.00 | — |
| 2 | 2.0000 | 7 | 14 | 650.00 | — |
| 2-1/2 | 2.5000 | 7-1/2 | 15 | 825.00 | — |

SET NO. 564S

5 Piece Set

Contains 1 Piece of Each:

1/4, 3/8, 1/2, 5/8, 3/4

Supplied in Wood Stand.

SET PRICE — \$349.00

SET NO. 565S

5 Piece Set

Contains 1 Piece of Each:

1/4, 3/8, 1/2, 5/8, 3/4

Supplied in Wood Stand.

SET PRICE — \$384.99

METRIC HAND REAMERS

► LIST NO. 564M — STRAIGHT FLUTE



| Size | Dec. Equiv. | Flute Length | Overall Length | Price Each |
|------|-------------|--------------|----------------|------------|
| 3.00 | .1181 | 1-7/32 | 2-7/16 | 43.70 |
| 3.20 | .1260 | 1-1/4 | 2-1/2 | 43.70 |
| 3.50 | .1378 | 1-3/8 | 2-3/4 | 43.70 |
| 4.00 | .1575 | 1-1/2 | 3 | 43.70 |
| 4.50 | .1772 | 1-5/8 | 3-1/4 | 43.70 |
| 5.00 | .1969 | 1-3/4 | 3-1/2 | 46.20 |
| 5.50 | .2165 | 1-13/16 | 3-5/8 | 46.20 |
| 6.00 | .2362 | 1-13/16 | 3-5/8 | 46.20 |
| 7.00 | .2756 | 2-1/8 | 4-1/4 | 49.50 |
| 8.00 | .3150 | 2-1/4 | 4-1/2 | 57.85 |
| 9.00 | .3543 | 2-7/16 | 4-7/8 | 57.85 |

| Size | Dec. Equiv. | Flute Length | Overall Length | Price Each |
|-------|-------------|--------------|----------------|------------|
| 10.00 | .3937 | 2-5/8 | 5-1/4 | 62.80 |
| 11.00 | .4331 | 2-3/4 | 5-1/2 | 62.80 |
| 12.00 | .4724 | 3 | 6 | 69.50 |
| 13.00 | .5118 | 3 | 6 | 76.75 |
| 14.00 | .5512 | 3-1/4 | 6-1/2 | 76.75 |
| 15.00 | .5906 | 3-1/4 | 6-1/2 | 87.95 |
| 16.00 | .6299 | 3-1/2 | 6-7/8 | 96.30 |
| 17.00 | .6693 | 3-3/8 | 6-3/4 | 96.30 |
| 18.00 | .7087 | 3-11/16 | 7-1/2 | 102.20 |
| 19.00 | .7480 | 3-3/4 | 7-1/2 | 117.65 |
| 20.00 | .7874 | 4 | 8 | 117.65 |



HIGH SPEED STEEL

BRIDGE REAMERS

TAPER SHANK — LONG BODY

Bridge reamers are designed to ream off-size, mis-shaped or mis-aligned holes in structural iron or steel. They are popular in the bridge erection and ship construction industries and in other similar applications.

| Size | Approx. Point Size | No. of Flutes | Flute Length | Overall Length | Morse Taper No. | Price Each | |
|---------|--------------------|---------------|--------------|----------------|-----------------|---------------------|-----------------------|
| | | | | | | Spiral List No. 532 | Straight List No. 533 |
| 9/32 | 5/32 | 4 | 4 | 7-1/4 | 1 | 57.50 | — |
| 11/32 | 5/32 | 4 | 4 | 7-1/4 | 2 | 57.50 | — |
| 7/16 | 1/4 | 5 | 4-3/8 | 8-1/4 | 2 | 57.50 | 65.00 |
| 15/32 | 1/4 | 5 | 5-1/8 | 9 | 2 | 61.25 | — |
| 1/2 | 9/32 | 5 | 5-1/8 | 9 | 2 | 61.25 | 65.00 |
| 33/64 | 9/32 | 5 | 5-1/8 | 9 | 2 | 63.15 | 85.00 |
| 17/32 | 9/32 | 5 | 5-1/8 | 9 | 2 | 63.15 | — |
| 9/16 | 11/32 | 5 | 5-1/8 | 9 | 2 | 64.15 | 79.50 |
| 37/64 | 3/8 | 5 | 5-1/8 | 9 | 2 | 67.50 | 79.50 |
| 5/8 | 3/8 | 5 | 6-1/8 | 10 | 2 | 72.50 | 79.50 |
| 11/16 | 25/64 | 5 | 7-1/8 | 11-3/4 | 3 | 87.00 | 99.00 |
| 3/4 | 7/16 | 5 | 7-3/8 | 12 | 3 | 95.00 | 99.00 |
| 25/32 | 1/2 | 5 | 7-3/8 | 12 | 3 | 105.00 | — |
| 13/16 | 1/2 | 5 | 7-3/8 | 12 | 3 | 113.85 | 107.00 |
| 7/8 | 9/16 | 5 | 7-3/8 | 12 | 3 | 113.85 | 121.00 |
| 29/32 | 5/8 | 5 | 7-3/8 | 12 | 3 | 125.00 | — |
| 15/16 | 5/8 | 5 | 7-3/8 | 12 | 3 | 112.00 | 121.00 |
| 1 | 11/16 | 5 | 7-3/8 | 12 | 3 | 128.00 | 139.50 |
| 1-1/32 | 3/4 | 5 | 7-3/8 | 12 | 3 | 142.00 | — |
| 1-1/16 | 3/4 | 5 | 7-3/8 | 12 | 3 | 140.75 | 175.00 |
| 1-1/8 | 13/16 | 5 | 7-3/8 | 12 | 3 | 155.00 | 175.00 |
| 1-5/32 | 7/8 | 5 | 7-3/8 | 12 | 3 | 165.00 | — |
| 1-3/16 | 7/8 | 5 | 7-3/8 | 12 | 3 | 175.00 | 178.00 |
| 1-7/32 | 15/16 | 4 | 7-3/8 | 13 | 4 | 189.00 | — |
| 1-1/4 | 15/16 | 5 | 7-3/8 | 13 | 4 | 193.00 | 214.00 |
| 1-9/32 | 1 | 5 | 7-3/8 | 13 | 4 | 233.00 | — |
| 1-5/16 | 1 | 5 | 7-3/8 | 13 | 4 | 223.00 | 235.00 |
| 1-11/32 | 1-1/8 | 4 | 7-3/8 | 13 | 4 | 245.00 | — |
| 1-3/8 | 1-1/8 | 5 | 7-3/8 | 13 | 4 | 253.50 | 265.00 |
| 1-13/32 | 1-3/16 | 4 | 7-3/8 | 13 | 4 | 260.00 | — |
| 1-7/16 | 1-3/16 | 5 | 7-3/8 | 13 | 4 | 265.00 | 278.00 |
| 1-1/2 | 1-1/4 | 5 | 7-3/8 | 13 | 4 | 297.00 | 310.00 |
| 1-17/32 | 1-3/8 | 4 | 7-3/8 | 13 | 4 | 375.00 | — |
| 1-9/16 | 1-3/8 | 4 | 7-3/8 | 13 | 4 | 390.00 | 398.00 |
| 1-5/8 | 1-3/8 | 5 | 7-3/8 | 13 | 4 | 399.00 | 405.00 |
| 1-11/16 | 1-11/16 | 5 | 7-3/8 | 13 | 4 | 425.00 | — |
| 1-3/4 | 1-11/16 | 5 | 7-3/8 | 13 | 5 | 450.00 | — |
| 1-7/8 | 1-11/16 | 4 | 7-3/8 | 13 | 5 | 475.00 | 480.00 |
| 2 | 1-11/16 | 6 | 7-3/8 | 13 | 5 | 499.00 | — |

Additional sizes available from stock. Please inquire.

▶ LIST NO. 532 — TYPE "D" SPIRAL FLUTE



▶ LIST NO. 533 — TYPE "C" STRAIGHT FLUTE



HIGH SPEED STEEL

CAR REAMERS

TAPER SHANK — SHORT BODY

Car reamers are primarily used for enlarging, aligning and deburring holes. They are often used in building and repairing railroad cars. Their short flute and overall lengths permit use in cramped quarters.

| Size | Approx. Point Size | No. of Flutes | Flute Length | Overall Length | Morse Taper No. | Price Each | |
|-------|--------------------|---------------|--------------|----------------|-----------------|---------------------|-----------------------|
| | | | | | | Spiral List No. 535 | Straight List No. 534 |
| 5/16 | 11/64 | 4 | 2-3/4 | 5-11/16 | 1 | 52.60 | 52.60 |
| 3/8 | 15/64 | 4 | 2-3/4 | 5-11/16 | 1 | 54.50 | — |
| 11/32 | 15/64 | 4 | 2-3/4 | 5-11/16 | 1 | 66.00 | — |
| 7/16 | 1/4 | 5 | 3-1/2 | 6-15/16 | 2 | 63.85 | 63.85 |
| 15/32 | 9/32 | 5 | 3-1/2 | 7-1/16 | 2 | 69.50 | — |
| 1/2 | 19/64 | 5 | 4 | 7-9/16 | 2 | 65.75 | — |
| 9/16 | 9/32 | 5 | 4 | 7-9/16 | 2 | 70.00 | 70.00 |
| 5/8 | 5/16 | 5 | 4-1/2 | 8-1/16 | 2 | 75.00 | — |
| 11/16 | 3/8 | 5 | 4-1/2 | 8-13/16 | 3 | 85.37 | 85.37 |
| 3/4 | 13/32 | 5 | 5 | 9-1/2 | 3 | 92.95 | 100.99 |
| 13/16 | 15/32 | 5 | 5 | 9-1/2 | 3 | 99.90 | 102.95 |
| 15/16 | 19/32 | 5 | 5 | 9-1/2 | 3 | 111.00 | 112.00 |
| 1 | 27/32 | 5 | 5 | 9-1/2 | 3 | 125.00 | — |

● LIST NO. 535 — TYPE "D" SPIRAL FLUTE



● LIST NO. 534 — TYPE "C" STRAIGHT FLUTE





ALIGNING REAMERS

STRAIGHT SHANK WITH 3-EQUAL-FLATS TO FIT 1/2" CHUCKS

Used to align existing holes prior to rivet or bolt installation. The point is tapered to allow entry into overlapping holes. They are also useful in portable reaming.

| Size | Flute Length | Overall Length | Shank Size | Price Each |
|--------|--------------|----------------|------------|------------|
| 1/4 | 2-1/2 | 4-3/8 | 1/4* | 42.46 |
| 5/16 | 2-3/4 | 4-5/8 | 5/16 | 42.46 |
| 3/8 | 2-3/4 | 4-5/8 | 3/8 | 42.46 |
| 7/16 | 3-1/2 | 5-3/8 | 7/16 | 44.00 |
| 1/2 | 4 | 5-7/8 | 1/2 | 44.00 |
| 9/16 | 4 | 5-7/8 | 1/2 | 49.00 |
| 39/64 | 4-1/2 | 6-3/8 | 1/2 | 55.00 |
| 5/8 | 4-1/2 | 6-3/8 | 1/2 | 51.00 |
| 11/16 | 4-1/2 | 6-3/8 | 1/2 | 56.75 |
| 3/4 | 5 | 6-7/8 | 1/2 | 67.95 |
| 13/16 | 5 | 6-7/8 | 1/2 | 68.50 |
| 7/8 | 5 | 6-7/8 | 1/2 | 73.50 |
| 15/16 | 5 | 6-7/8 | 1/2 | 76.90 |
| 1 | 5 | 6-7/8 | 1/2 | 89.90 |
| 1-1/16 | 5 | 6-7/8 | 1/2 | 105.00 |

* No flats on shank.

■ LIST NO. 535R — SPIRAL FLUTE



STRAIGHT SHANK ALIGNING REAMERS

SET NO. 535RS

4 Piece Set
Contains 1 piece of each:
1/2, 9/16, 5/8, 3/4
Supplied in Wood Block.
SET PRICE — \$199.00

ALIGNING REAMERS- HEX SHANK STYLE

For portable pneumatic tools – short lengths permits use in limited access areas. The shank diameter for each reamer matches socket size for the bolt which will be driven through the newly reamed hole.

| Size | Flute Length | Overall Length | Hex Shank Size | Price Each |
|--------|--------------|----------------|----------------|------------|
| 11/16 | 4-1/2 | 6-1/2 | 1-1/16 | 71.00 |
| 13/16 | 5 | 7 | 1-1/4 | 86.50 |
| 15/16 | 5 | 7 | 1-7/16 | 96.00 |
| 1-1/16 | 5 | 7 | 1-5/8 | 129.00 |

■ LIST NO. 535H



Federal Tool Premium Import

MORSE TAPER FINISHING REAMERS

STRAIGHT FLUTE

This tool is used for accurate reaming of Morse Taper holes in sockets, sleeves and spindles.

▶ LIST NO. 568 — STRAIGHT SHANK
▶ LIST NO. 569 — TAPER SHANK

| Size | Diameter | | Flute Length | Straight Shank Size | Price Each | |
|------|-----------|-----------|--------------|---------------------|--------------|--------------|
| | Small End | Large End | | | List No. 568 | List No. 569 |
| 0 | .2503 | .3674 | 2-1/4 | 5/16 | 59.00 | 93.00 |
| 1 | .3674 | .5170 | 3 | 7/16 | 79.00 | 99.00 |
| 2 | .5696 | .7444 | 3-1/2 | 5/8 | 95.00 | 123.50 |
| 3 | .7748 | .9881 | 4-1/4 | 7/8 | 138.50 | 172.00 |
| 4 | 1.0167 | 1.2893 | 5-1/4 | 1-1/4 | 205.00 | 269.00 |
| 5 | 1.4717 | 1.8005 | 6-1/4 | 1-1/2 | 390.00 | 532.75 |
| 6 | 2.1120 | 2.5550 | 8-1/2 | 2 | 830.00 | 850.00 |



SET NO. 568S

5 Piece Set
Contains 1 Piece Each
No. 1-5, Straight Shank
Taper Hand Reamers
Supplied in Wood Block.
SET PRICE — \$895.00

REPAIRMAN'S TAPER REAMER

● LIST NO. 538

- Removes burrs from small holes.
- Enlarges and countersinks holes in soft material.

| Size | Range | Price Each |
|------|------------|------------|
| 1 | 1/8 to 1/2 | 19.00 |
| 2 | 1/8 to 5/8 | 22.50 |





HIGH SPEED STEEL

HAND TAPS

STANDARD

PLUG

3-5 THREAD CHAMFER

Most versatile choice for through or blindholes.

TAPER

7-10 THREAD CHAMFER

Have longest standard chamfer for easier starts and less torque.

BOTTOMING

1-2 THREAD CHAMFER

Designed for threading near the bottom of blindholes.

Please specify plug, bottoming or taper chamfer when ordering.

- ▶ LIST NO. 770 — HIGH SPEED STEEL, GROUND THREAD
- ▶ LIST NO. 770 SET — 3 PIECE SET, PLUG, BOTTOMING AND TAPER CHAMFER



Hand taps are the most commonly used general purpose tap. They are recommended for tapping free machining steels, stainless steels, aluminum, zinc and ductile material. Hand taps are utilized in either through or blind hole tapping.

FRACTIONAL SIZES

| Size | Threads Per Inch | Thread Limits | No. of Flutes | Price Each | |
|-------|------------------|---------------|---------------|--------------|---------------------------|
| | | | | List No. 770 | 3Pc. Set List No. 770 Set |
| 1/4 | 20 | H3 | 4 | 6.79 | 20.37 |
| 1/4 | 28 | H3 | 4 | 6.79 | 20.37 |
| 5/16 | 18 | H3 | 4 | 8.92 | 26.76 |
| 5/16 | 24 | H3 | 4 | 8.92 | 26.76 |
| 3/8 | 16 | H3 | 4 | 10.12 | 30.36 |
| 3/8 | 24 | H3 | 4 | 10.12 | 30.36 |
| 7/16 | 14 | H3 | 4 | 17.30 | 51.90 |
| 7/16 | 20 | H3 | 4 | 17.30 | 51.90 |
| 1/2 | 13 | H3 | 4 | 18.10 | 54.30 |
| 1/2 | 20 | H3 | 4 | 20.50 | 61.50 |
| 9/16 | 12 | H3 | 4 | 30.37 | 91.11 |
| 9/16 | 18 | H3 | 4 | 30.37 | 91.11 |
| 5/8 | 11 | H3 | 4 | 36.47 | 109.41 |
| 5/8 | 18 | H3 | 4 | 36.47 | 109.41 |
| 11/16 | 11 | H3 | 4 | 45.25 | 135.75 |
| 11/16 | 16 | H3 | 4 | 45.25 | 135.75 |

| Size | Threads Per Inch | Thread Limits | No. of Flutes | Price Each | |
|-------|------------------|---------------|---------------|--------------|---------------------------|
| | | | | List No. 770 | 3Pc. Set List No. 770 Set |
| 3/4 | 10 | H3 | 4 | 51.00 | 153.00 |
| 3/4 | 16 | H3 | 4 | 51.00 | 153.00 |
| 7/8 | 9 | H4 | 4 | 71.20 | 213.60 |
| 7/8 | 14 | H4 | 4 | 71.20 | 213.60 |
| 1 | 8 | H4 | 4 | 94.60 | 283.80 |
| 1 | 12 | H4 | 4 | 97.67 | 293.01 |
| 1 | 14 | H4 | 4 | 97.67 | 293.01 |
| 1-1/8 | 7 | H4 | 4 | 153.30 | 459.90 |
| 1-1/8 | 12 | H4 | 4 | 162.30 | 486.90 |
| 1-1/4 | 7 | H4 | 4 | 201.44 | 604.32 |
| 1-1/4 | 12 | H4 | 6 | 204.70 | 614.10 |
| 1-3/8 | 6 | H4 | 4 | 253.45 | 760.35 |
| 1-3/8 | 12 | H4 | 6 | 255.20 | 765.60 |
| 1-1/2 | 6 | H4 | 4 | 283.40 | 850.20 |
| 1-1/2 | 12 | H4 | 6 | 288.25 | 864.75 |
| 2 | 4 -1/2 | H4 | 6 | 435.55 | 1306.65 |

MACHINE SCREW SIZES

| Size | Threads Per Inch | Thread Limits | No. of Flutes | Price Each | |
|------|------------------|---------------|---------------|--------------|---------------------------|
| | | | | List No. 770 | 3Pc. Set List No. 770 Set |
| 0 | 80 | H1 | 2 | 16.40 | 49.20 |
| 1 | 64 | H1 | 2 | 15.35 | 46.05 |
| 1 | 72 | H2 | 2 | 15.35 | 46.05 |
| 2 | 56 | H2 | 3 | 13.15 | 39.45 |
| 2 | 64 | H2 | 3 | 14.25 | 42.75 |
| 3 | 48 | H2 | 3 | 10.12 | 30.36 |
| 3 | 56 | H2 | 3 | 11.28 | 33.84 |
| 4 | 36 | H2 | 3 | 8.95 | 26.85 |
| 4 | 40 | H2 | 3 | 8.30 | 24.90 |
| 4 | 48 | H2 | 3 | 8.92 | 26.76 |

| Size | Threads Per Inch | Thread Limits | No. of Flutes | Price Each | |
|------|------------------|---------------|---------------|--------------|---------------------------|
| | | | | List No. 770 | 3Pc. Set List No. 770 Set |
| 5 | 40 | H2 | 3 | 8.30 | 24.90 |
| 5 | 44 | H2 | 3 | 8.92 | 26.76 |
| 6 | 32 | H3 | 3 | 6.40 | 19.20 |
| 6 | 40 | H2 | 3 | 6.75 | 20.25 |
| 8 | 32 | H3 | 4 | 6.60 | 19.80 |
| 8 | 36 | H2 | 4 | 6.75 | 20.25 |
| 10 | 24 | H3 | 4 | 6.75 | 20.25 |
| 10 | 32 | H3 | 4 | 6.75 | 20.25 |
| 12 | 24 | H3 | 4 | 7.09 | 21.27 |
| 12 | 28 | H3 | 4 | 7.80 | 23.40 |

HIGH SPEED STEEL

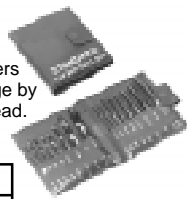
STANDARD TAP AND DRILL SETS

◆ SET NO. 770R

Supplied in handy pouch.
Features larger drill diameters which minimize tap breakage by reducing percentage of thread.

SET PRICE — \$49.95

| 8 Taps | 8 Drills |
|--------------|----------------|
| Plug Chamfer | Tap Drill Size |
| 6-32 | 7/64 |
| 8-32 | #29 |
| 10-24 | #23 |
| 10-32 | #20 |
| 1/4-20 | 13/64 |
| 5/16-18 | 17/64 |
| 3/8-16 | "P" |
| 1/2-13 | 7/16 |



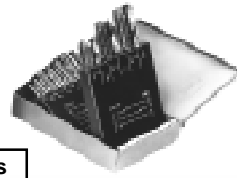
◆ SET NO. 770X

HAND TAPS

Supplied in metal index.
Features smaller drill diameters to create more percentage of thread.

SET PRICE — \$72.50

| 9 Taps | 9 Drills |
|--------------|----------------|
| Plug Chamfer | Tap Drill Size |
| 6-32 | #36 |
| 8-32 | #29 |
| 10-24 | #25 |
| 10-32 | #21 |
| 1/4-20 | #7 |
| 5/16-18 | "F" |
| 3/8-16 | 5/16 |
| 7/16-14 | "U" |
| 1/2-13 | 27/64 |

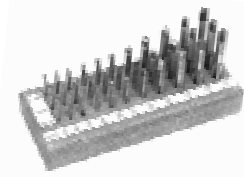


HAND TAP SET

◆ SET NO. 770S

33 Piece Set
Contains 1 piece each of:
1/4-20, 5/16-18, 3/8-16, 7/16-14, 1/2-13, 4-40, 5-40, 6-32, 8-32, 10-24 and 10-32.
All sizes in plug, bottoming and taper chamfer. Supplied in wood stand.

SET PRICE — \$149.95



◆ SET NO. 780X

SPIRAL POINT

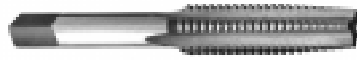
Supplied in metal index.
Features smaller drill diameters to create more percentage of thread.

SET PRICE — \$79.50

HAND TAPS

OPTIONAL THREAD LIMITS

● LIST NO. 770H - GROUND THREAD



Please specify plug, bottoming or taper chamfer when ordering.

| Size | Threads Per Inch | Thread Limits | No. of Flutes | Chamfer Available | Price Each |
|------|------------------|---------------|---------------|-------------------|------------|
| 0 | 80 | H2 | 2 | P,T,B | 16.40 |
| 2 | 56 | H1 | 3 | P,T | 14.20 |
| 2 | 64 | H1 | 3 | P,T,B | 14.20 |
| 3 | 48 | H1 | 3 | P,T,B | 11.20 |
| 3 | 56 | H1 | 3 | P,T,B | 11.20 |
| 4 | 40 | H1 | 3 | P,T,B | 8.90 |
| 4 | 40 | H4 | 3 | P,T | 8.90 |
| 4 | 48 | H1 | 3 | P,T | 8.90 |
| 5 | 40 | H1 | 3 | P,T,B | 8.90 |
| 5 | 44 | H1 | 3 | P,T,B | 8.90 |
| 6 | 32 | H1 | 3 | P,T | 7.80 |
| 6 | 32 | H2 | 3 | P,T,B | 7.80 |
| 8 | 32 | H1 | 4 | P,T,B | 7.80 |
| 8 | 36 | H1 | 4 | P,T | 8.90 |
| 10 | 24 | H1 | 4 | P,T,B | 6.90 |
| 10 | 24 | H2 | 4 | P,T,B | 7.80 |
| 10 | 32 | H1 | 4 | P,T,B | 7.80 |
| 10 | 32 | H2 | 4 | P,T,B | 6.95 |
| 10 | 32 | H6 | 4 | P,T,B | 8.97 |
| 12 | 24 | H2 | 4 | P,T,B | 7.10 |
| 12 | 28 | H2 | 4 | P,T,B | 7.80 |
| 1/4 | 20 | H1 | 4 | P,T,B | 9.00 |
| 1/4 | 20 | H2 | 4 | P,T,B | 9.00 |
| 1/4 | 20 | H5 | 4 | P,T,B | 8.60 |
| 1/4 | 28 | H1 | 4 | P,T,B | 8.65 |
| 1/4 | 28 | H2 | 4 | P,T,B | 9.00 |
| 5/16 | 18 | H2 | 4 | T | 10.15 |
| 5/16 | 18 | H4 | 4 | P,T,B | 10.00 |
| 5/16 | 18 | H5 | 4 | P,T,B | 10.00 |
| 5/16 | 18 | H7 | 4 | P,T,B | 10.00 |
| 5/16 | 24 | H1 | 4 | P,T,B | 10.00 |
| 5/16 | 24 | H2 | 4 | P,T,B | 10.00 |
| 5/16 | 24 | H4 | 4 | P,T,B | 10.00 |
| 3/8 | 16 | H1 | 4 | P,T,B | 13.00 |
| 3/8 | 16 | H2 | 4 | P,T,B | 11.35 |
| 3/8 | 16 | H5 | 4 | P,T,B | 11.35 |
| 3/8 | 24 | H1 | 4 | P,T | 13.00 |
| 3/8 | 24 | H2 | 4 | P,T,B | 11.90 |
| 3/8 | 24 | H4 | 4 | P,T,B | 11.35 |
| 3/8 | 24 | H5 | 4 | P,T | 11.35 |
| 7/16 | 14 | H1 | 4 | P,T,B | 18.90 |
| 7/16 | 14 | H2 | 4 | P,T | 18.90 |
| 7/16 | 14 | H5 | 4 | P,T,B | 18.90 |

P=Plug, T=Taper, B=Bottoming

| Size | Threads Per Inch | Thread Limits | No. of Flutes | Chamfer Available | Price Each |
|-------|------------------|---------------|---------------|-------------------|------------|
| 7/16 | 20 | H1 | 4 | P,T | 18.90 |
| 7/16 | 20 | H2 | 4 | P,T,B | 18.90 |
| 7/16 | 20 | H5 | 4 | P,T,B | 18.90 |
| 7/16 | 20 | H6 | 4 | P,T,B | 18.90 |
| 7/16 | 20 | H10 | 4 | P,T | 18.90 |
| 1/2 | 13 | H1 | 4 | P,T | 22.20 |
| 1/2 | 13 | H2 | 4 | P,T | 22.20 |
| 1/2 | 13 | H5 | 4 | P,T,B | 22.20 |
| 1/2 | 13 | H8 | 4 | P,T | 22.20 |
| 1/2 | 13 | H10 | 4 | P,T,B | 22.20 |
| 1/2 | 20 | H1 | 4 | P,T | 22.20 |
| 1/2 | 20 | H2 | 4 | P,T | 22.20 |
| 1/2 | 20 | H5 | 4 | P,T,B | 22.20 |
| 9/16 | 12 | H5 | 4 | P,T | 33.00 |
| 9/16 | 18 | H1 | 4 | P,T | 33.00 |
| 9/16 | 18 | H2 | 4 | P,T,B | 33.00 |
| 9/16 | 18 | H5 | 4 | P,T,B | 33.00 |
| 5/8 | 11 | H5 | 4 | P,T,B | 41.90 |
| 5/8 | 18 | H1 | 4 | P,T | 41.90 |
| 5/8 | 18 | H2 | 4 | P,T,B | 41.90 |
| 5/8 | 18 | H4 | 4 | P,T,B | 41.90 |
| 5/8 | 18 | H5 | 4 | P,T | 41.90 |
| 3/4 | 10 | H1 | 4 | P,T,B | 55.00 |
| 3/4 | 10 | H2 | 4 | P,T,B | 55.00 |
| 3/4 | 10 | H5 | 4 | P,T,B | 55.00 |
| 7/8 | 9 | H3 | 4 | P,T | 74.75 |
| 7/8 | 9 | H5 | 4 | P,T | 74.75 |
| 7/8 | 9 | H6 | 4 | P,T,B | 74.75 |
| 7/8 | 14 | H2 | 4 | T | 74.75 |
| 7/8 | 14 | H3 | 4 | P,T,B | 74.75 |
| 7/8 | 14 | H10 | 4 | P,T | 74.75 |
| 1 | 8 | H1 | 4 | P,T,B | 97.50 |
| 1 | 8 | H2 | 4 | P,T | 97.50 |
| 1 | 12 | H2 | 4 | P,T,B | 97.50 |
| 1 | 14 | H1 | 4 | P,T,B | 97.50 |
| 1 | 14 | H2 | 4 | P,T,B | 97.50 |
| 1 | 14 | H3 | 4 | P,T | 97.50 |
| 1-1/8 | 7 | H8 | 4 | P,T,B | 155.00 |
| 1-1/8 | 12 | H1 | 4 | P,T,B | 166.00 |
| 1-1/8 | 12 | H3 | 4 | P,T,B | 165.00 |
| 1-1/8 | 12 | H5 | 4 | P,T | 165.00 |
| 1-1/2 | 12 | H8 | 4 | P,T,B | 309.00 |

Partial listing, inquire for additional sizes.

OPTIONAL FLUTES



● LIST NO. 770F — GROUND THREAD

| Size | Threads Per Inch | Thread Limits | No. of Flutes | Chamfer Available | Price Each |
|------|------------------|---------------|---------------|-------------------|------------|
| 2 | 56 | H2 | 2 | P,B,T | 14.20 |
| 4 | 40 | H2 | 2 | P,B,T | 8.90 |
| 6 | 32 | H3 | 2 | P,T | 7.10 |
| 8 | 32 | H3 | 2 | P,B,T | 6.70 |
| 8 | 32 | H3 | 3 | P,T | 6.70 |
| 10 | 24 | H3 | 2 | P,T | 6.90 |
| 10 | 24 | H3 | 3 | P,T | 6.90 |
| 10 | 32 | H3 | 2 | P,B,T | 6.90 |
| 12 | 28 | H3 | 2 | P,T | 7.80 |
| 1/4 | 20 | H3 | 3 | P,B,T | 8.90 |
| 1/4 | 28 | H3 | 2 | P,B,T | 9.00 |
| 1/4 | 28 | H3 | 3 | P,B,T | 9.00 |
| 5/16 | 18 | H3 | 2 | P,T | 11.30 |
| 5/16 | 18 | H3 | 3 | P,B,T | 10.00 |
| 3/8 | 16 | H3 | 3 | P,B,T | 11.30 |
| 3/8 | 24 | H3 | 3 | P,B,T | 13.00 |
| 7/16 | 14 | H3 | 3 | P,B,T | 18.90 |
| 7/16 | 20 | H3 | 3 | P,T | 18.90 |
| 1/2 | 13 | H3 | 3 | P,B,T | 22.50 |
| 1/2 | 20 | H3 | 3 | P,B,T | 22.50 |

P=Plug, T=Taper, B=Bottoming

COMBINED OPTIONAL THREAD LIMITS AND OPTIONAL FLUTES



● LIST NO. 770HF — GROUND THREAD

| Size | Threads Per Inch | Thread Limits | No. of Flutes | Chamfer Available | Price Each |
|------|------------------|---------------|---------------|-------------------|------------|
| 6 | 40 | H1 | 2 | P,T | 7.80 |
| 8 | 32 | H1 | 2 | P,T | 7.80 |
| 8 | 32 | H2 | 2 | P,B,T | 7.80 |
| 10 | 24 | H1 | 2 | P,T | 6.95 |
| 10 | 24 | H2 | 3 | P,T | 7.80 |
| 1/4 | 20 | H1 | 3 | P,T | 8.90 |
| 1/4 | 20 | H3 | 2 | P,T | 8.90 |
| 1/4 | 20 | H5 | 3 | P,T | 8.90 |
| 1/4 | 28 | H1 | 3 | P,T | 8.90 |
| 5/16 | 18 | H1 | 3 | P,B,T | 10.00 |
| 5/16 | 18 | H5 | 2 | P,B,T | 11.40 |
| 5/16 | 18 | H5 | 3 | P,B,T | 10.00 |
| 5/16 | 24 | H2 | 3 | P,B,T | 10.00 |
| 5/16 | 24 | H4 | 3 | P,T | 10.00 |
| 3/8 | 16 | H1 | 3 | P,B,T | 13.00 |
| 3/8 | 16 | H5 | 3 | P,B,T | 13.00 |
| 3/8 | 16 | H8 | 3 | P,T | 13.00 |
| 3/8 | 24 | H2 | 3 | P,B,T | 13.00 |
| 3/8 | 24 | H4 | 3 | P,B,T | 13.00 |
| 7/16 | 14 | H5 | 3 | P,B,T | 18.90 |
| 1/2 | 13 | H5 | 3 | P,B,T | 22.50 |
| 1/2 | 20 | H1 | 3 | P,B,T | 22.50 |
| 1/2 | 20 | H5 | 3 | P,T | 22.50 |

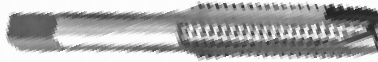
Partial listing, inquire for additional sizes.

HIGH SPEED STEEL

SPIRAL POINTED TAPS

STANDARD

▶ LIST NO. 780 — GROUND THREAD



Spiral Pointed Taps are used to solve the problem of tap breakage in through hole tapping in a wide variety of materials. They are very effective, because they shoot the chips ahead of the tap thereby reducing loading and clogging in the flutes.

FRACTIONAL SIZES

PLUG CHAMFER

MACHINE SCREW SIZES

| Size | Threads Per Inch | Thread Limits | No. of Flutes | Price Each |
|------|------------------|---------------|---------------|------------|
| 1/4 | 20 | H3 | 2 | 7.95 |
| 1/4 | 28 | H3 | 2 | 7.95 |
| 5/16 | 18 | H3 | 2 | 9.00 |
| 5/16 | 24 | H3 | 2 | 9.00 |
| 3/8 | 16 | H3 | 3 | 10.70 |
| 3/8 | 24 | H3 | 3 | 11.65 |
| 7/16 | 14 | H3 | 3 | 18.27 |
| 7/16 | 20 | H3 | 3 | 18.27 |
| 1/2 | 13 | H3 | 3 | 18.63 |
| 1/2 | 20 | H3 | 3 | 19.80 |
| 9/16 | 12 | H3 | 3 | 38.60 |
| 9/16 | 18 | H3 | 3 | 38.60 |
| 5/8 | 11 | H3 | 3 | 41.65 |
| 5/8 | 18 | H3 | 3 | 41.65 |
| 3/4 | 10 | H3 | 3 | 58.78 |
| 3/4 | 16 | H3 | 3 | 58.78 |
| 7/8 | 9 | H4 | 3 | 80.65 |
| 7/8 | 14 | H4 | 3 | 80.65 |
| 1 | 8 | H4 | 3 | 111.90 |
| 1 | 12 | H4 | 3 | 111.90 |
| 1 | 14 | H4 | 3 | 111.90 |

| Size | Threads Per Inch | Thread Limits | No. of Flutes | Price Each |
|------|------------------|---------------|---------------|------------|
| 0 | 80 | H1 | 2 | 20.20 |
| 1 | 64 | H1 | 2 | 18.20 |
| 1 | 72 | H2 | 2 | 18.20 |
| 2 | 56 | H2 | 2 | 15.60 |
| 2 | 64 | H2 | 2 | 17.65 |
| 3 | 48 | H2 | 2 | 12.45 |
| 3 | 56 | H2 | 2 | 13.50 |
| 4 | 36 | H2 | 2 | 11.65 |
| 4 | 40 | H2 | 2 | 10.05 |
| 4 | 48 | H2 | 2 | 11.62 |
| 5 | 40 | H2 | 2 | 9.95 |
| 5 | 44 | H2 | 2 | 11.65 |
| 6 | 32 | H3 | 2 | 8.35 |
| 6 | 40 | H2 | 2 | 9.50 |
| 8 | 32 | H3 | 2 | 8.35 |
| 8 | 36 | H2 | 2 | 9.50 |
| 10 | 24 | H3 | 2 | 8.35 |
| 10 | 32 | H3 | 2 | 8.35 |
| 12 | 24 | H3 | 2 | 9.50 |
| 12 | 28 | H3 | 2 | 9.50 |
| 14 | 20 | H3 | 2 | 12.50 |

HIGH SPEED STEEL

OPTIONAL THREAD LIMITS

● LIST NO. 780H — GROUND THREAD



FRACTIONAL SIZES

PLUG CHAMFER

MACHINE SCREW SIZES

| Size | Threads Per Inch | Thread Limits | No. of Flutes | Price Each |
|------|------------------|---------------|---------------|------------|
| 1/4 | 28 | H4 | 2 | 9.50 |
| 5/16 | 18 | H1 | 2 | 11.90 |
| 5/16 | 24 | H1 | 2 | 11.90 |
| 5/16 | 24 | H2 | 2 | 11.90 |
| 5/16 | 24 | H4 | 2 | 11.90 |
| 5/16 | 24 | H5 | 2 | 11.95 |
| 3/8 | 16 | H1 | 3 | 13.60 |
| 3/8 | 16 | H5 | 3 | 13.60 |
| 3/8 | 24 | H1 | 2 | 13.60 |
| 3/8 | 24 | H2 | 3 | 13.60 |
| 7/16 | 14 | H2 | 3 | 20.12 |
| 1/2 | 13 | H1 | 3 | 24.30 |
| 1/2 | 20 | H5 | 3 | 24.30 |
| 9/16 | 12 | H1 | 3 | 38.60 |
| 5/8 | 11 | H5 | 3 | 41.60 |
| 7/8 | 9 | H5 | 3 | 80.65 |
| 1 | 8 | H6 | 3 | 111.90 |

| Size | Threads Per Inch | Thread Limits | No. of Flutes | Price Each |
|------|------------------|---------------|---------------|------------|
| 0 | 80 | H2 | 2 | 20.30 |
| 1 | 64 | H2 | 2 | 18.30 |
| 2 | 56 | H3 | 2 | 19.10 |
| 2 | 64 | H1 | 2 | 17.65 |
| 3 | 48 | H1 | 3 | 15.20 |
| 3 | 56 | H1 | 2 | 13.90 |
| 4 | 40 | H1 | 2 | 11.60 |
| 4 | 48 | H1 | 2 | 11.62 |
| 5 | 40 | H1 | 3 | 11.62 |
| 5 | 44 | H1 | 3 | 11.65 |
| 6 | 32 | H1 | 2 | 9.50 |
| 6 | 32 | H4 | 2 | 9.50 |
| 8 | 36 | H3 | 2 | 9.50 |
| 10 | 24 | H1 | 2 | 10.40 |
| 10 | 24 | H2 | 2 | 9.50 |
| 10 | 24 | H5 | 2 | 9.50 |
| 10 | 32 | H1 | 2 | 9.50 |
| 10 | 32 | H4 | 2 | 9.50 |
| 10 | 32 | H5 | 2 | 9.50 |
| 12 | 24 | H2 | 2 | 10.50 |

Partial listing, please inquire for additional sizes.

SPIRAL POINTED BOTTOMING TAPS

● LIST NO. 780B — GROUND THREAD



| Size | Threads Per Inch | Thread Limits | No. of Flutes | Price Each |
|------|------------------|---------------|---------------|------------|
| 5 | 40 | H2 | 2 | 13.15 |
| 6 | 32 | H3 | 2 | 10.50 |
| 8 | 32 | H3 | 2 | 10.50 |
| 10 | 24 | H3 | 2 | 10.20 |

| Size | Threads Per Inch | Thread Limits | No. of Flutes | Price Each |
|------|------------------|---------------|---------------|------------|
| 10 | 32 | H3 | 2 | 10.20 |
| 12 | 24 | H3 | 2 | 12.00 |
| 1/4 | 20 | H3 | 2 | 10.50 |
| 5/16 | 18 | H3 | 2 | 12.70 |

COATED HAND TAPS

GROUND THREAD



Surface Treated: *Steam Oxide Coating* produces a thin iron oxide surface which reduces friction between the tool and the chips, acting as a lubrication media.

TiN Coating: *Titanium Nitride Coating* is the ideal coating for a wide range of applications, materials and cutting conditions where tool life and elevated feeds and speeds are the operating objectives. The high lubricity of TiN Coating facilitates chip flow, prevents build up, reduces cutting forces and regulates temperature. TiN Coating reduces wear and improves chip formation to extend tool life. In addition, the high hardness and low coefficient of friction of TiN reduce erosion, abrasion, metal on metal wear and corrosion.

TiAlN Coating: *Titanium Aluminum Nitride Coating* is ideal for high temperature cutting operations in many materials. When TiAlN is exposed to high cutting temperature it forms a hard aluminum oxide layer with low thermal conductivity and high chemical stability. As cutting temperatures increase, TiAlN insulates the tool and ejects heat into the chips. As a result, production levels increase with higher speeds, reduced down time and longer tool life.



FRACTIONAL SIZES

| Size | Threads Per Inch | Thread Limits | No. of Flutes | Price Each | | |
|-------|------------------|---------------|---------------|----------------|---------------|----------------|
| | | | | List No. 770ST | List No. 770T | List No. 770TA |
| 1/4 | 20 | H3 | 4 | 6.55 | 12.77 | 19.92 |
| 1/4 | 28 | H3 | 4 | 6.55 | 12.77 | 19.92 |
| 5/16 | 18 | H3 | 4 | 8.10 | 16.52 | 25.77 |
| 5/16 | 24 | H3 | 4 | 8.10 | 16.52 | 25.77 |
| 3/8 | 16 | H3 | 4 | 9.15 | 17.48 | 27.27 |
| 3/8 | 24 | H3 | 4 | 9.15 | 17.48 | 27.27 |
| 7/16 | 14 | H3 | 4 | 15.60 | 23.24 | 36.25 |
| 7/16 | 20 | H3 | 4 | 15.60 | 23.24 | 36.25 |
| 1/2 | 13 | H3 | 4 | 16.65 | 24.14 | 37.66 |
| 1/2 | 20 | H3 | 4 | 18.60 | 26.04 | 40.62 |
| 9/16 | 12 | H3 | 4 | 27.75 | 42.18 | 65.80 |
| 9/16 | 18 | H3 | 4 | 27.75 | 42.18 | 65.80 |
| 5/8 | 11 | H3 | 4 | 33.15 | 47.40 | 73.94 |
| 5/8 | 18 | H3 | 4 | 33.15 | 47.40 | 73.94 |
| 11/16 | 11 | H3 | 4 | 40.00 | 55.20 | 86.11 |
| 11/16 | 16 | H3 | 4 | 40.00 | 55.20 | 86.11 |
| 3/4 | 10 | H3 | 4 | 46.20 | 60.98 | 95.13 |
| 3/4 | 16 | H3 | 4 | 46.20 | 60.98 | 95.13 |
| 7/8 | 9 | H4 | 4 | 64.75 | 80.29 | 125.25 |
| 7/8 | 14 | H4 | 4 | 64.75 | 80.29 | 125.25 |
| 1 | 8 | H4 | 4 | 85.00 | 110.50 | 172.38 |
| 1 | 12 | H4 | 4 | 89.00 | 114.81 | 179.10 |
| 1 | 14 | H4 | 4 | 86.00 | 110.08 | 171.72 |
| 1-1/8 | 7 | H4 | 4 | 139.00 | 152.90 | 238.52 |
| 1-1/8 | 12 | H4 | 4 | 148.00 | 168.72 | 263.20 |
| 1-1/4 | 7 | H4 | 4 | 182.00 | 231.14 | 360.58 |
| 1-1/4 | 12 | H4 | 6 | 186.00 | 234.36 | 365.60 |
| 1-3/8 | 6 | H4 | 4 | 230.00 | 358.80 | 559.73 |
| 1-3/8 | 12 | H4 | 6 | 232.00 | 361.92 | 564.60 |
| 1-1/2 | 6 | H4 | 4 | 265.00 | 389.55 | 607.70 |
| 1-1/2 | 12 | H4 | 6 | 270.00 | 396.90 | 619.16 |

- LIST NO. 770ST --- SURFACE TREATED HAND TAPS
- LIST NO. 770T --- TiN COATED HAND TAPS
- LIST NO. 770TA --- TiAlN COATED HAND TAPS

Please specify plug, bottoming, or taper chamfer when ordering.

MACHINE SCREW SIZES

| Size | Threads Per Inch | Thread Limits | No. of Flutes | Price Each | | |
|------|------------------|---------------|---------------|----------------|---------------|----------------|
| | | | | List No. 770ST | List No. 770T | List No. 770TA |
| 0 | 80 | H1 | 2 | 15.00 | 16.80 | 26.21 |
| 1 | 64 | H1 | 2 | 13.90 | 15.57 | 24.29 |
| 1 | 72 | H2 | 2 | 13.90 | 15.57 | 24.29 |
| 2 | 56 | H2 | 3 | 11.80 | 13.90 | 21.68 |
| 2 | 64 | H2 | 3 | 12.25 | 15.54 | 24.24 |
| 3 | 48 | H2 | 3 | 9.20 | 11.50 | 17.94 |
| 3 | 56 | H2 | 3 | 10.30 | 12.26 | 19.13 |
| 4 | 36 | H2 | 3 | 8.10 | 10.45 | 16.30 |
| 4 | 40 | H2 | 3 | 7.50 | 9.90 | 15.44 |
| 4 | 48 | H2 | 3 | 8.10 | 10.45 | 16.30 |
| 5 | 40 | H2 | 3 | 7.50 | 9.90 | 15.44 |
| 5 | 44 | H2 | 3 | 8.10 | 10.37 | 16.18 |
| 6 | 32 | H3 | 3 | 5.70 | 8.55 | 13.34 |
| 6 | 40 | H2 | 3 | 6.40 | 8.66 | 13.51 |
| 8 | 32 | H3 | 4 | 5.95 | 11.48 | 17.91 |
| 8 | 36 | H2 | 4 | 6.10 | 11.77 | 18.36 |
| 10 | 24 | H3 | 4 | 6.10 | 11.77 | 18.36 |
| 10 | 32 | H3 | 4 | 6.10 | 11.77 | 18.36 |
| 12 | 24 | H3 | 4 | 6.40 | 11.71 | 18.27 |
| 12 | 28 | H3 | 4 | 7.10 | 13.28 | 20.72 |

COATED SPIRAL POINTED TAPS

- LIST NO. 780ST --- SURFACE TREATED SPIRAL POINTED TAPS
- LIST NO. 780T --- TiN COATED SPIRAL POINTED TAPS
- LIST NO. 780TA --- TiAlN COATED SPIRAL POINTED TAPS



FRACTIONAL SIZES

| Size | Threads Per Inch | Thread Limits | No. of Flutes | Price Each | | |
|------|------------------|---------------|---------------|----------------|---------------|----------------|
| | | | | List No. 780ST | List No. 780T | List No. 780TA |
| 1/4 | 20 | H3 | 2 | 7.50 | 12.20 | 19.03 |
| 1/4 | 28 | H3 | 2 | 7.50 | 12.20 | 19.03 |
| 5/16 | 18 | H3 | 2 | 8.20 | 11.50 | 17.94 |
| 5/16 | 24 | H3 | 2 | 8.20 | 11.50 | 17.94 |
| 3/8 | 16 | H3 | 3 | 9.80 | 14.70 | 22.90 |
| 3/8 | 24 | H3 | 3 | 10.50 | 14.70 | 22.90 |
| 7/16 | 14 | H3 | 3 | 16.70 | 23.50 | 36.60 |
| 7/16 | 20 | H3 | 3 | 16.70 | 23.50 | 36.60 |
| 1/2 | 13 | H3 | 3 | 17.00 | 27.80 | 43.30 |
| 1/2 | 20 | H3 | 3 | 19.80 | 27.80 | 43.30 |
| 9/16 | 12 | H3 | 3 | 27.80 | 35.24 | 43.30 |
| 9/16 | 18 | H3 | 3 | 27.80 | 35.24 | 43.30 |
| 5/8 | 11 | H3 | 3 | 37.90 | 53.00 | 82.60 |
| 5/8 | 18 | H3 | 3 | 37.90 | 53.00 | 82.60 |
| 3/4 | 10 | H3 | 3 | 53.65 | 75.00 | 117.00 |
| 3/4 | 16 | H3 | 3 | 55.39 | 75.00 | 117.00 |
| 7/8 | 9 | H4 | 3 | 71.60 | 98.00 | 153.00 |
| 7/8 | 14 | H4 | 3 | 71.60 | 98.00 | 153.00 |
| 1 | 8 | H4 | 3 | 99.35 | 137.00 | 214.00 |
| 1 | 12 | H4 | 3 | 99.35 | 137.00 | 214.00 |
| 1 | 14 | H4 | 3 | 99.35 | 137.00 | 214.00 |

MACHINE SCREW SIZES

| Size | Threads Per Inch | Thread Limits | No. of Flutes | Price Each | | |
|------|------------------|---------------|---------------|----------------|---------------|----------------|
| | | | | List No. 780ST | List No. 780T | List No. 780TA |
| 0 | 80 | H1 | 2 | 18.39 | 25.75 | 40.17 |
| 1 | 64 | H1 | 2 | 16.70 | 25.75 | 40.17 |
| 1 | 72 | H2 | 2 | 16.70 | 25.75 | 40.17 |
| 2 | 56 | H2 | 2 | 14.00 | 19.69 | 30.72 |
| 2 | 64 | H2 | 2 | 16.00 | 19.69 | 30.72 |
| 3 | 48 | H2 | 2 | 11.25 | 15.90 | 24.80 |
| 3 | 56 | H2 | 2 | 12.10 | 15.90 | 24.80 |
| 4 | 36 | H2 | 2 | 10.50 | 12.70 | 19.81 |
| 4 | 40 | H2 | 2 | 9.00 | 12.70 | 19.81 |
| 4 | 48 | H2 | 2 | 10.50 | 12.70 | 19.81 |
| 5 | 40 | H2 | 2 | 9.00 | 12.70 | 19.81 |
| 5 | 44 | H2 | 2 | 10.50 | 12.70 | 19.81 |
| 6 | 32 | H3 | 2 | 7.50 | 10.70 | 16.69 |
| 6 | 40 | H2 | 2 | 8.70 | 10.70 | 16.69 |
| 8 | 32 | H3 | 2 | 7.50 | 10.70 | 16.69 |
| 8 | 36 | H2 | 2 | 8.70 | 10.70 | 16.69 |
| 10 | 24 | H3 | 2 | 7.50 | 10.70 | 16.69 |
| 10 | 32 | H3 | 2 | 7.50 | 10.70 | 16.69 |
| 12 | 24 | H3 | 2 | 8.70 | 12.20 | 19.03 |
| 12 | 28 | H3 | 2 | 8.70 | 12.20 | 19.03 |
| 14 | 20 | H3 | 2 | 9.75 | 12.20 | 19.03 |

MAINTENANCE TAPS

HAND TAPS

PLUG

3-5 THREAD CHAMFER

Most versatile choice for through or blind holes.

TAPER

7-10 THREAD CHAMFER

Have longest standard chamfer for easier starts and less torque.

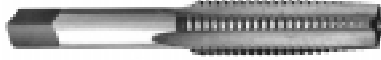
BOTTOMING

1-2 THREAD CHAMFER

Designed for threading near the bottom of blind holes.

Please specify plug, bottoming or taper chamfer when ordering.

- ▶ LIST NO. 772 — HAND TAPS
- ▶ LIST NO. 772 SET — 3 PIECE SET



These taps are made from quality high speed steel. Though intended for general maintenance applications, they perform well in light production runs.

FRACTIONAL SIZES

| Size | Threads Per Inch | Price Each | |
|------|------------------|--------------|----------------------------|
| | | List No. 772 | 3 Pc. Set List No. 772 Set |
| 1/4 | 20 | 4.90 | 14.70 |
| 1/4 | 28 | 4.90 | 14.70 |
| 5/16 | 18 | 5.70 | 17.10 |
| 5/16 | 24 | 5.70 | 17.10 |
| 3/8 | 16 | 6.70 | 20.10 |
| 3/8 | 24 | 6.70 | 20.10 |
| 7/16 | 14 | 10.20 | 30.60 |
| 7/16 | 20 | 10.20 | 30.60 |
| 1/2 | 13 | 12.20 | 36.60 |
| 1/2 | 20 | 12.20 | 36.60 |
| 9/16 | 12 | 18.40 | 55.20 |

| Size | Threads Per Inch | Price Each | |
|-------|------------------|--------------|----------------------------|
| | | List No. 772 | 3 Pc. Set List No. 772 Set |
| 9/16 | 18 | 18.40 | 55.20 |
| 5/8 | 11 | 22.50 | 67.50 |
| 5/8 | 18 | 22.50 | 67.50 |
| 11/16 | 11 | 22.50 | 67.50 |
| 11/16 | 16 | 27.80 | 83.40 |
| 3/4 | 10 | 31.20 | 93.60 |
| 3/4 | 16 | 31.20 | 93.60 |
| 7/8 | 9 | 43.00 | 93.60 |
| 7/8 | 14 | 43.00 | 93.60 |
| 1 | 8 | 57.60 | 172.80 |

| Size | Threads Per Inch | Price Each | |
|-------|------------------|--------------|----------------------------|
| | | List No. 772 | 3 Pc. Set List No. 772 Set |
| 1 | 12 | 57.60 | 172.80 |
| 1 | 14 | 57.60 | 172.80 |
| 1-1/8 | 7 | 91.70 | 275.10 |
| 1-1/8 | 12 | 91.70 | 275.10 |
| 1-1/4 | 7 | 115.29 | 345.87 |
| 1-1/4 | 12 | 115.29 | 345.87 |
| 1-3/8 | 6 | 145.10 | 435.30 |
| 1-3/8 | 12 | 145.10 | 435.30 |
| 1-1/2 | 6 | 168.50 | 401.76 |
| 1-1/2 | 12 | 168.50 | 401.76 |

MACHINE SCREW SIZES

| Size | Threads Per Inch | Price Each | |
|------|------------------|--------------|----------------------------|
| | | List No. 772 | 3 Pc. Set List No. 772 Set |
| 0 | 80 | 10.80 | 32.40 |
| 1 | 64 | 9.94 | 29.82 |
| 1 | 72 | 9.94 | 29.82 |
| 2 | 56 | 9.19 | 27.57 |
| 2 | 64 | 9.19 | 27.57 |
| 3 | 48 | 7.20 | 21.60 |
| 3 | 56 | 7.20 | 21.60 |

| Size | Threads Per Inch | Price Each | |
|------|------------------|--------------|----------------------------|
| | | List No. 772 | 3 Pc. Set List No. 772 Set |
| 4 | 40 | 5.70 | 17.10 |
| 4 | 48 | 5.70 | 17.10 |
| 5 | 40 | 5.70 | 17.10 |
| 5 | 44 | 5.70 | 17.10 |
| 6 | 32 | 4.40 | 13.20 |
| 6 | 40 | 4.40 | 13.20 |

| Size | Threads Per Inch | Price Each | |
|------|------------------|--------------|----------------------------|
| | | List No. 772 | 3 Pc. Set List No. 772 Set |
| 8 | 32 | 4.40 | 13.20 |
| 8 | 36 | 4.40 | 13.20 |
| 10 | 24 | 4.60 | 13.80 |
| 10 | 32 | 4.60 | 13.80 |
| 12 | 24 | 5.00 | 15.00 |
| 12 | 28 | 5.00 | 15.00 |
| 12 | 32 | 5.70 | 17.10 |

SPIRAL POINTED TAPS

PLUG CHAMFER

- ▶ LIST NO. 782



FRACTIONAL SIZES

| Size | Threads Per Inch | Price Each |
|------|------------------|------------|
| 1/4 | 20 | 5.70 |
| 1/4 | 28 | 5.70 |
| 5/16 | 18 | 6.10 |
| 5/16 | 24 | 6.10 |
| 3/8 | 16 | 7.50 |
| 3/8 | 24 | 7.50 |
| 7/16 | 14 | 12.50 |

| Size | Threads Per Inch | Price Each |
|------|------------------|------------|
| 7/16 | 20 | 12.50 |
| 1/2 | 13 | 12.50 |
| 1/2 | 20 | 14.89 |
| 9/16 | 12 | 22.89 |
| 9/16 | 18 | 22.89 |
| 5/8 | 11 | 28.18 |
| 5/8 | 18 | 28.18 |

| Size | Threads Per Inch | Price Each |
|------|------------------|------------|
| 3/4 | 10 | 40.00 |
| 3/4 | 16 | 40.00 |
| 7/8 | 9 | 55.09 |
| 7/8 | 14 | 55.09 |
| 1 | 8 | 73.77 |
| 1 | 12 | 73.77 |
| 1 | 14 | 73.77 |

MACHINE SCREW SIZES

| Size | Threads Per Inch | Price Each |
|------|------------------|------------|
| 0 | 80 | 15.30 |
| 1 | 64 | 14.18 |
| 1 | 72 | 14.18 |
| 2 | 56 | 11.90 |
| 2 | 64 | 13.60 |
| 3 | 48 | 9.61 |
| 3 | 56 | 10.61 |

| Size | Threads Per Inch | Price Each |
|------|------------------|------------|
| 4 | 40 | 7.80 |
| 4 | 48 | 7.80 |
| 5 | 40 | 7.80 |
| 5 | 44 | 7.80 |
| 6 | 32 | 6.49 |
| 6 | 40 | 6.49 |

| Size | Threads Per Inch | Price Each |
|------|------------------|------------|
| 8 | 32 | 5.65 |
| 8 | 36 | 6.49 |
| 10 | 24 | 5.70 |
| 10 | 32 | 5.70 |
| 12 | 24 | 6.49 |
| 12 | 28 | 6.49 |

CARBON STEEL MAINTENANCE TAPS

HAND TAPS

**PLUG
3-5 THREAD CHAMFER**
Most versatile choice for through or blind holes.

**TAPER
7-10 THREAD CHAMFER**
Have longest standard chamfer for easier starts and less torque.

**BOTTOMING
1-2 THREAD CHAMFER**
Designed for threading near the bottom of blind holes.

Please specify plug, bottoming or taper chamfer when ordering.

- LIST NO. 772CB — HAND TAPS
- LIST NO. 772CB SET — 3 PIECE SET



FRACTIONAL SIZES

| Size | Threads Per Inch | Price Each | |
|------|------------------|----------------|------------------------------|
| | | List No. 772CB | 3 Pc. Set List No. 772CB Set |
| 1/8 | 40 | 1.94 | 5.82 |
| 5/32 | 32 | 1.94 | 5.82 |
| 5/32 | 36 | 1.94 | 5.82 |
| 3/16 | 24 | 2.14 | 6.42 |
| 3/16 | 32 | 2.14 | 6.42 |
| 1/4 | 20 | 2.50 | 7.50 |
| 1/4 | 28 | 2.50 | 7.50 |
| 5/16 | 18 | 3.06 | 9.18 |
| 5/16 | 24 | 3.06 | 9.18 |
| 3/8 | 16 | 3.42 | 10.26 |
| 3/8 | 24 | 3.42 | 10.26 |
| 7/16 | 14 | 4.49 | 13.47 |
| 7/16 | 20 | 4.49 | 13.47 |

| Size | Threads Per Inch | Price Each | |
|-------|------------------|----------------|------------------------------|
| | | List No. 772CB | 3 Pc. Set List No. 772CB Set |
| 1/2 | 13 | 5.15 | 15.45 |
| 1/2 | 20 | 5.15 | 15.45 |
| 9/16 | 12 | 6.99 | 20.97 |
| 9/16 | 18 | 6.99 | 20.97 |
| 5/8 | 11 | 7.75 | 23.25 |
| 5/8 | 18 | 7.75 | 23.25 |
| 11/16 | 11 | 9.90 | 29.70 |
| 3/4 | 10 | 11.02 | 33.06 |
| 3/4 | 16 | 11.02 | 33.06 |
| 7/8 | 9 | 15.45 | 46.35 |
| 7/8 | 14 | 15.45 | 46.35 |
| 1 | 8 | 19.23 | 57.69 |

| Size | Threads Per Inch | Price Each | |
|-------|------------------|----------------|------------------------------|
| | | List No. 772CB | 3 Pc. Set List No. 772CB Set |
| 1 | 12 | 19.23 | 57.69 |
| 1 | 14 | 19.23 | 57.69 |
| 1-1/8 | 7 | 38.35 | 115.05 |
| 1-1/8 | 12 | 38.35 | 115.05 |
| 1-1/4 | 7 | 44.17 | 132.51 |
| 1-1/4 | 12 | 44.17 | 132.51 |
| 1-3/8 | 6 | 50.85 | 152.55 |
| 1-3/8 | 12 | 50.85 | 152.55 |
| 1-1/2 | 6 | 59.93 | 179.79 |
| 1-1/2 | 12 | 59.93 | 179.79 |
| 2 | 4-1/2 | 65.98 | 197.94 |
| 2-1/4 | 4-1/2 | 72.42 | 217.26 |

MACHINE SCREW SIZES

| Size | Threads Per Inch | Price Each | |
|------|------------------|----------------|------------------------------|
| | | List No. 772CB | 3 Pc. Set List No. 772CB Set |
| 0 | 80 | 3.72 | 11.16 |
| 1 | 64 | 3.47 | 10.41 |
| 1 | 72 | 3.47 | 10.41 |
| 2 | 56 | 3.32 | 9.96 |
| 2 | 64 | 3.32 | 9.96 |
| 3 | 48 | 2.40 | 7.20 |
| 3 | 56 | 2.40 | 7.20 |

| Size | Threads Per Inch | Price Each | |
|------|------------------|----------------|------------------------------|
| | | List No. 772CB | 3 Pc. Set List No. 772CB Set |
| 4 | 36 | 2.40 | 7.20 |
| 4 | 40 | 2.40 | 7.20 |
| 4 | 48 | 2.40 | 7.20 |
| 5 | 40 | 1.99 | 5.97 |
| 5 | 44 | 1.99 | 5.97 |
| 6 | 32 | 1.99 | 5.97 |
| 6 | 40 | 1.99 | 5.97 |

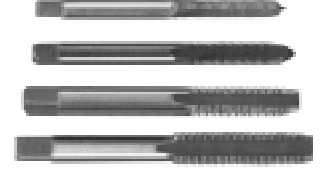
| Size | Threads Per Inch | Price Each | |
|------|------------------|----------------|------------------------------|
| | | List No. 772CB | 3 Pc. Set List No. 772CB Set |
| 8 | 32 | 1.99 | 5.97 |
| 8 | 36 | 1.99 | 5.97 |
| 10 | 24 | 2.14 | 6.42 |
| 10 | 32 | 2.19 | 6.57 |
| 12 | 24 | 2.49 | 7.47 |
| 12 | 28 | 2.49 | 7.47 |

SETS

**CARBON TAP SET
SET NO. 772CBC**
4 Piece NC Set
Contains 1 piece of each:
10-24, 1/4-20, 5/16-18, 3/8-16
SET PRICE — \$9.75



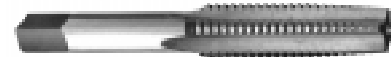
**CARBON TAP SET
SET NO. 772CBF**
4 Piece NF Set
Contains 1 piece of each:
10-32, 1/4-28, 5/16-24, 3/8-24
SET PRICE — \$9.75



CARBON STEEL MAINTENANCE METRIC TAPS

PLUG CHAMFER

- LIST NO. 773MCB — HAND TAPS



| Size mm | Pitch mm | Price Each |
|---------|----------|------------|
| 3 | .50 | 2.75 |
| 3 | .60 | 2.75 |
| 4 | .70 | 2.50 |
| 4 | .75 | 2.50 |
| 5 | .80 | 2.50 |
| 5 | .90 | 2.50 |
| 6 | 1.00 | 2.75 |
| 7 | 1.00 | 3.25 |
| 8 | 1.00 | 3.45 |
| 8 | 1.25 | 3.45 |

| Size mm | Pitch mm | Price Each |
|---------|----------|------------|
| 9 | .75 | 3.90 |
| 9 | 1.00 | 3.90 |
| 9 | 1.25 | 4.65 |
| 10 | 1.00 | 4.65 |
| 10 | 1.25 | 4.65 |
| 10 | 1.50 | 4.65 |
| 11 | 1.50 | 5.00 |
| 12 | 1.25 | 5.40 |
| 12 | 1.50 | 5.40 |
| 12 | 1.75 | 5.40 |

| Size mm | Pitch mm | Price Each |
|---------|----------|------------|
| 14 | 1.25 | 7.50 |
| 14 | 1.50 | 7.50 |
| 14 | 2.00 | 7.50 |
| 16 | 1.50 | 9.50 |
| 16 | 2.00 | 9.50 |
| 18 | 1.50 | 12.75 |
| 18 | 2.50 | 12.75 |
| 20 | 1.50 | 15.00 |
| 24 | 3.00 | 25.00 |



HIGH SPEED STEEL

PRODUCTION MAX™

HIGH PERFORMANCE TAPS

SURFACE TREATED

● LIST NO. 780HSP — SPIRAL POINTED TAPS

For tough jobs in stainless steels and free machining steels. Ideally suited for through hole tapping.



PLUG CHAMFER

| Size | Threads per Inch | No. of Flutes | Price Each | Size | Threads per Inch | No. of Flutes | Price Each |
|------|------------------|---------------|------------|------|------------------|---------------|------------|
| 6 | 32 | 2 | 13.16 | 7/16 | 14 | 3 | 23.89 |
| 8 | 32 | 3 | 13.16 | 7/16 | 20 | 3 | 23.89 |
| 10 | 24 | 3 | 13.18 | 1/2 | 13 | 3 | 27.59 |
| 10 | 32 | 3 | 13.18 | 1/2 | 20 | 3 | 27.59 |
| 1/4 | 20 | 3 | 14.50 | 9/16 | 12 | 3 | 42.75 |
| 1/4 | 28 | 3 | 14.50 | 9/16 | 18 | 3 | 42.75 |
| 5/16 | 18 | 3 | 16.18 | 5/8 | 11 | 3 | 50.11 |
| 5/16 | 24 | 3 | 16.18 | 5/8 | 18 | 3 | 50.11 |
| 3/8 | 16 | 3 | 18.49 | 3/4 | 10 | 3 | 78.69 |
| 3/8 | 24 | 3 | 18.49 | | | | |

● LIST NO. 780HSF — SPIRAL FLUTED TAPS

For tough hole tapping in stainless steels and free machining steels. Ideally suited for blind hole tapping.



SEMI BOTTOMING CHAMFER

| Size | Threads per Inch | No. of Flutes | Price Each | Size | Threads per Inch | No. of Flutes | Price Each |
|------|------------------|---------------|------------|------|------------------|---------------|------------|
| 6 | 32 | 3 | 18.69 | 7/16 | 14 | 3 | 38.25 |
| 8 | 32 | 3 | 18.69 | 7/16 | 20 | 3 | 38.25 |
| 10 | 24 | 3 | 19.15 | 1/2 | 13 | 3 | 46.61 |
| 10 | 32 | 3 | 19.15 | 1/2 | 20 | 3 | 46.61 |
| 1/4 | 20 | 3 | 21.12 | 9/16 | 12 | 3 | 70.71 |
| 1/4 | 28 | 3 | 21.12 | 9/16 | 18 | 3 | 70.71 |
| 5/16 | 18 | 3 | 23.53 | 5/8 | 11 | 4 | 77.65 |
| 5/16 | 24 | 3 | 23.53 | 5/8 | 18 | 4 | 77.65 |
| 3/8 | 16 | 3 | 26.22 | 3/4 | 10 | 4 | 100.31 |
| 3/8 | 24 | 3 | 26.22 | | | | |

SPIRAL FLUTED TAPS

Please specify plug or bottoming when ordering.

● LIST NO. 776 – FAST SPIRAL – 52° HELIX ANGLE

| Size | Threads per Inch/ mm | Thread Limits | No. of Flutes | Price Each | |
|------|----------------------|---------------|---------------|--------------|----------------|
| | | | | List No. 776 | List No. 776SL |
| 1/4 | 20 | H3 | 3 | 13.95 | 14.50 |
| 1/4 | 20 | H5 | 3 | 15.90 | — |
| 1/4 | 28 | H3 | 3 | 13.95 | 14.50 |
| 5/16 | 18 | H3 | 3 | 17.75 | 18.50 |
| 5/16 | 18 | H5 | 3 | 19.20 | 20.45 |
| 5/16 | 24 | H3 | 3 | 17.75 | 21.25 |
| 3/8 | 16 | H3 | 3 | 20.40 | 23.40 |
| 3/8 | 24 | H3 | 3 | 20.40 | 21.51 |
| 3/8 | 24 | H5 | 3 | — | 32.21 |
| 7/16 | 14 | H3 | 3 | 30.50 | 32.21 |
| 7/16 | 20 | H3 | 3 | 30.50 | 38.50 |
| 1/2 | 13 | H3 | 3 | 36.75 | 38.50 |
| 1/2 | 20 | H3 | 3 | 36.75 | 65.24 |
| 5/8 | 11 | H3 | 3 | 54.70 | — |
| 5/8 | 18 | H3 | 4 | 54.70 | — |
| 3/4 | 10 | H3 | 4 | 65.24 | — |
| 3/4 | 16 | H3 | 4 | 65.24 | — |

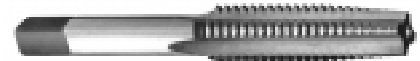
● LIST NO. 776SL – SLOW SPIRAL – 30° HELIX ANGLE



| Size | Threads per Inch/ mm | Threads Limits | No. of Flutes | Price Each | |
|------|----------------------|----------------|---------------|--------------|----------------|
| | | | | List No. 776 | List No. 776SL |
| 3 | 40 | H2 | 2 | 19.60 | — |
| 4 | 40 | H2 | 2 | 16.20 | 15.40 |
| 5 | 40 | H2 | 2 | 16.20 | 15.40 |
| 6 | 32 | H3 | 2 | 13.25 | 11.95 |
| 6 | 40 | H2 | 2 | 15.66 | — |
| 8 | 32 | H3 | 3 | 13.25 | 11.95 |
| 8 | 36 | H2 | 3 | 15.66 | 15.66 |
| 10 | 24 | H3 | 3 | 13.25 | 11.95 |
| 10 | 32 | H3 | 3 | 13.25 | 11.95 |
| 12 | 24 | H3 | 3 | 14.35 | 14.32 |
| M5 | .8 | D4 | 3 | 19.90 | — |
| M6 | 1.0 | D5 | 3 | 19.90 | — |
| M8 | .75 | D5 | 3 | 19.90 | — |
| M8 | 1.25 | D5 | 3 | 19.90 | — |
| M10 | 1.50 | D6 | 3 | 26.80 | — |
| M12 | 1.25 | D6 | 3 | 37.50 | — |
| M12 | 1.75 | D6 | 3 | 37.50 | — |

+ .005 OVERSIZE TAPS

PLUG CHAMFER



Primarily used where a part will be plated or heat treated after tapping

● LIST NO. 775 +.005 HAND TAPS

| Size | Threads per Inch | No. of Flutes | Price Each | Size | Threads per Inch | No. of Flutes | Price Each |
|------|------------------|---------------|------------|-------|------------------|---------------|------------|
| 2 | 56 | 3 | 9.00 | 1/2 | 13 | 4 | 19.95 |
| 4 | 40 | 3 | 9.00 | 1/2 | 20 | 4 | 19.95 |
| 5 | 40 | 3 | 9.00 | 9/16 | 12 | 4 | 33.29 |
| 6 | 32 | 3 | 8.35 | 9/16 | 18 | 4 | 33.29 |
| 6 | 40 | 3 | 8.35 | 5/8 | 11 | 4 | 37.79 |
| 8 | 32 | 4 | 8.35 | 5/8 | 18 | 4 | 37.79 |
| 10 | 24 | 4 | 8.35 | 3/4 | 10 | 4 | 49.95 |
| 10 | 32 | 4 | 8.35 | 7/8 | 14 | 4 | 59.95 |
| 1/4 | 20 | 4 | 8.19 | 1 | 8 | 4 | 69.38 |
| 1/4 | 28 | 4 | 10.39 | 1 | 12 | 4 | 69.38 |
| 5/16 | 18 | 4 | 10.39 | 1 | 14 | 4 | 69.38 |
| 3/8 | 16 | 4 | 11.89 | 1-1/8 | 12 | 4 | 74.92 |
| 3/8 | 24 | 4 | 11.89 | 1-1/4 | 7 | 4 | 78.92 |
| 7/16 | 14 | 4 | 17.89 | 1-1/4 | 12 | 4 | 78.92 |
| 7/16 | 20 | 4 | 17.89 | | | | |

● LIST NO. 785 +.005 SPIRAL POINTED TAPS

| Size | Threads per Inch | No. of Flutes | Price Each | Size | Threads per Inch | No. of Flutes | Price Each |
|------|------------------|---------------|------------|------|------------------|---------------|------------|
| 5 | 40 | 2 | 11.29 | 7/16 | 14 | 3 | 19.98 |
| 6 | 32 | 2 | 10.99 | 1/2 | 13 | 3 | 22.19 |
| 6 | 40 | 2 | 10.99 | 1/2 | 20 | 3 | 22.19 |
| 8 | 32 | 2 | 10.99 | 9/16 | 12 | 3 | 34.38 |
| 10 | 24 | 2 | 10.99 | 9/16 | 18 | 3 | 34.38 |
| 10 | 32 | 2 | 10.99 | 5/8 | 11 | 3 | 37.89 |
| 12 | 24 | 2 | 10.05 | 3/4 | 10 | 3 | 49.95 |
| 1/4 | 20 | 2 | 9.48 | 7/8 | 9 | 3 | 62.48 |
| 5/16 | 18 | 2 | 10.89 | 7/8 | 14 | 3 | 62.48 |
| 5/16 | 24 | 2 | 10.89 | 1 | 8 | 3 | 69.99 |
| 3/8 | 16 | 3 | 12.38 | 1 | 12 | 3 | 69.99 |
| 3/8 | 24 | 3 | 12.38 | | | | |

SET NO. 775S
8 PIECE SET

Contains 1 Piece of Each:
NC 6-32 thru 1/2-13 and 10-32
Excludes 7/16
Supplied in Wood Block
SET PRICE - \$83.00

SET NO. 785S
8 PIECE SET

Contains 1 Piece of Each:
NC 6-32 thru 1/2-13 and 10-32
Excludes 7/16
Supplied in Wood Block
SET PRICE - \$98.00

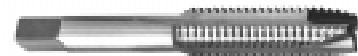
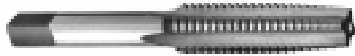
SET NO. 785A
16 PIECE SET

Contains 1 Piece of Each:
Combination of Set 775S & 785S
Supplied in Wood Block
SET PRICE - \$182.00

HIGH SPEED STEEL

METRIC TAPS

GROUND THREAD



- LIST NO. 773M — HAND TAPS*
- LIST NO. 773M SET — 3 PIECE SETS, PLUG, BOTTOMING AND TAPER CHAMFER
- LIST NO. 774M — SPIRAL POINTED TAPS (Plug Chamfer Only)

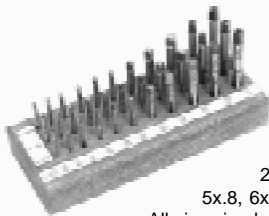
*Please specify plug, bottoming or taper chamfer when ordering.

| Size mm | Pitch mm | No. of Flutes | Hand Taps | | Spiral Pointed | |
|---------|----------|---------------|---------------|-------------------|----------------|---------------|
| | | | Price Each | | No. of Flutes | Price Each |
| | | | List No. 773M | List No. 773M Set | | List No. 774M |
| 1.6 | .35 | 2 | 19.20 | 57.60 | 2 | 21.49 |
| 1.8 | .35 | 2 | 19.20 | 57.60 | 2 | 21.49 |
| 2 | .40 | 3 | 19.20 | 57.60 | 2 | 19.80 |
| 2.2 | .45 | 3 | 11.80 | 35.40 | 2 | 14.28 |
| 2.3 | .40 | 3 | 11.80 | 35.40 | 2 | 14.28 |
| 2.5 | .45 | 3 | 11.80 | 35.40 | 2 | 14.28 |
| 2.6 | .45 | 3 | 11.80 | 35.40 | 2 | 14.28 |
| 2.8 | .45 | 3 | 11.80 | 35.40 | 2 | 14.28 |
| 3 | .50 | 3 | 9.80 | 29.40 | 2 | 11.37 |
| 3 | .60 | 3 | 8.10 | 24.30 | — | — |
| 3.5 | .60 | 3 | 8.10 | 24.30 | 2 | 9.79 |
| 4 | .50 | 4 | 8.40 | 25.20 | 2 | 9.79 |
| 4 | .70 | 4 | 8.10 | 24.30 | 2 | 9.79 |
| 4 | .75 | 4 | 8.40 | 25.20 | — | — |
| 4.5 | .75 | 4 | 8.10 | 24.30 | 2 | 9.79 |
| 5 | .50 | 4 | 8.40 | 25.20 | 2 | 9.79 |
| 5 | .80 | 4 | 8.10 | 24.30 | 2 | 9.79 |
| 5 | .90 | 4 | 8.40 | 25.20 | — | — |
| 6 | .50 | 4 | 8.60 | 25.80 | — | — |
| 6 | .75 | 4 | 8.60 | 25.80 | 2 | 9.79 |
| 6 | .80 | — | — | — | 2 | 9.79 |
| 6 | 1.00 | 4 | 8.60 | 25.80 | 2 | 9.79 |
| 6.3 | 1.00 | 4 | 9.30 | 27.90 | 2 | 9.79 |
| 7 | .50 | 4 | 9.30 | 27.90 | 2 | 11.37 |
| 7 | 1.00 | 4 | 9.30 | 27.90 | 2 | 11.37 |
| 8 | .75 | 4 | 9.20 | 27.60 | 2 | 11.37 |
| 8 | 1.00 | 4 | 9.20 | 27.60 | 2 | 11.37 |
| 8 | 1.25 | 4 | 9.20 | 27.60 | 2 | 11.37 |
| 8 | 1.50 | 4 | 9.27 | 27.81 | 2 | 11.37 |
| 9 | .50 | 4 | 12.09 | 36.27 | 2 | 11.37 |
| 9 | 1.00 | 4 | 12.09 | 36.27 | 2 | 11.37 |
| 9 | 1.25 | 4 | 12.09 | 36.27 | 2 | 11.37 |
| 10 | .75 | 4 | 13.10 | 39.30 | — | — |
| 10 | 1.00 | 4 | 13.10 | 39.30 | 3 | 18.78 |
| 10 | 1.25 | 4 | 13.10 | 39.30 | 3 | 18.78 |
| 10 | 1.50 | 4 | 13.80 | 41.40 | 3 | 18.78 |
| 11 | .75 | 4 | 17.59 | 52.77 | 3 | 18.78 |
| 11 | 1.25 | 4 | 17.59 | 52.77 | — | — |
| 11 | 1.50 | 4 | 17.59 | 52.77 | 3 | 18.78 |
| 12 | .80 | 4 | — | — | 3 | 23.00 |
| 12 | 1.00 | 4 | 21.00 | 63.00 | — | — |
| 12 | 1.25 | 4 | 21.00 | 63.00 | 3 | 23.00 |
| 12 | 1.50 | 4 | 21.00 | 63.00 | 3 | 23.00 |
| 12 | 1.75 | 4 | 20.79 | 62.37 | 3 | 23.00 |
| 13 | 1.25 | 4 | 31.20 | 93.60 | — | — |
| 14 | 1.00 | 4 | 31.20 | 93.60 | — | — |
| 14 | 1.25 | 4 | 31.20 | 93.60 | 3 | 34.85 |
| 14 | 1.50 | 4 | 31.20 | 93.60 | 3 | 34.85 |
| 14 | 2.00 | 4 | 31.20 | 93.60 | 3 | 34.85 |
| 15 | 1.00 | 4 | 38.27 | 114.81 | — | — |
| 15 | 1.50 | 4 | 38.27 | 114.81 | — | — |
| 15 | 2.00 | 4 | 38.27 | 114.81 | — | — |
| 16 | 1.00 | 4 | 38.27 | 114.81 | 3 | 40.63 |
| 16 | 1.50 | 4 | 38.27 | 114.81 | 3 | 40.63 |

| Size mm | Pitch mm | No. of Flutes | Hand Taps | | Spiral Pointed | |
|---------|----------|---------------|---------------|-------------------|----------------|---------------|
| | | | Price Each | | No. of Flutes | Price Each |
| | | | List No. 773M | List No. 773M Set | | List No. 774M |
| 16 | 2.00 | 4 | 38.27 | 114.81 | 3 | 40.63 |
| 17 | 1.50 | 4 | 51.40 | 154.20 | — | — |
| 18 | 1.00 | 4 | 51.40 | 154.20 | 3 | 50.87 |
| 18 | 1.50 | 4 | 51.40 | 154.20 | 3 | 50.87 |
| 18 | 2.00 | 4 | 51.40 | 154.20 | 3 | 50.87 |
| 18 | 2.50 | 4 | 51.40 | 154.20 | 3 | 50.87 |
| 20 | 1.00 | 4 | 69.89 | 209.67 | 3 | 73.87 |
| 20 | 1.50 | 4 | 69.89 | 209.67 | 3 | 73.87 |
| 20 | 2.00 | 4 | 69.89 | 209.67 | — | — |
| 20 | 2.50 | 4 | 69.89 | 209.67 | 3 | 73.87 |
| 22 | 1.00 | 4 | 72.75 | 218.25 | — | — |
| 22 | 1.50 | 4 | 72.75 | 218.25 | 3 | 97.96 |
| 22 | 2.00 | 4 | 72.75 | 218.25 | — | — |
| 22 | 2.50 | 4 | 72.75 | 218.25 | 3 | 97.96 |
| 24 | 1.00 | 4 | 93.39 | 280.17 | — | — |
| 24 | 1.50 | 4 | 93.39 | 280.17 | — | — |
| 24 | 2.00 | 4 | 93.39 | 280.17 | 3 | 118.54 |
| 24 | 3.00 | 4 | 93.39 | 280.17 | 3 | 118.54 |
| 25 | 1.50 | 4 | 163.95 | 491.85 | — | — |
| 26 | 1.50 | 4 | 163.95 | 491.85 | — | — |
| 27 | 1.50 | 4 | 120.50 | 361.50 | — | — |
| 27 | 2.00 | 4 | 120.50 | 361.50 | — | — |
| 27 | 3.00 | 4 | 113.90 | 361.50 | — | — |
| 28 | 1.50 | 4 | 197.19 | 591.57 | — | — |
| 30 | 1.50 | 4 | 197.19 | 591.57 | — | — |
| 30 | 2.00 | 4 | 197.19 | 591.57 | — | — |
| 30 | 3.00 | 4 | 197.19 | 591.57 | — | — |
| 30 | 3.50 | 4 | 197.19 | 591.57 | — | — |
| 32 | 1.50 | 4 | 210.35 | 631.05 | — | — |
| 32 | 2.00 | 4 | 197.19 | 591.57 | — | — |
| 33 | 1.50 | 4 | 268.59 | 805.77 | — | — |
| 33 | 2.00 | 4 | 210.35 | 631.05 | — | — |
| 33 | 3.50 | 4 | 210.35 | 631.05 | — | — |
| 34 | 1.50 | 4 | 268.59 | 805.77 | — | — |
| 35 | 1.00 | 4 | 268.59 | 805.77 | — | — |
| 36 | 1.50 | 4 | 268.59 | 805.77 | — | — |
| 36 | 2.00 | 4 | 268.59 | 805.77 | — | — |
| 36 | 3.00 | 4 | 268.59 | 805.77 | — | — |
| 36 | 4.00 | 4 | 268.59 | 805.77 | — | — |
| 38 | 1.50 | 4 | 354.72 | 1064.16 | — | — |
| 39 | 3.00 | 6 | 354.72 | 1064.16 | — | — |
| 39 | 4.00 | 6 | 354.72 | 1064.16 | — | — |
| 40 | 1.50 | 6 | 456.00 | 1368.00 | — | — |
| 42 | 1.50 | 6 | 456.00 | 1368.00 | — | — |
| 42 | 2.00 | 6 | 456.00 | 1368.00 | — | — |
| 45 | 1.50 | 6 | 456.00 | 1368.00 | — | — |
| 45 | 4.00 | 6 | 456.00 | 1368.00 | — | — |
| 45 | 4.50 | 6 | 456.00 | 1368.00 | — | — |
| 48 | 1.50 | 6 | 485.00 | 1455.00 | — | — |
| 48 | 3.00 | 6 | 485.00 | 1455.00 | — | — |
| 48 | 5.00 | 6 | 485.00 | 1455.00 | — | — |
| 52 | 1.50 | 6 | 599.00 | 1797.00 | — | — |
| 52 | 5.00 | 6 | 599.00 | 1797.00 | — | — |

HIGH SPEED STEEL

◆ HAND TAP SET



METRIC SIZES SET NO. 773MA

33 Piece Set
Contains 1 piece each of:
2x.4, 2.5x.45, 3x.5, 3.5x.6, 4x.7,
5x.8, 6x1, 7x1, 8x1.25, 10x1.5, 12x1.75
All sizes in plug, bottoming and taper chamfer.
Supplied in wood stand.

SET PRICE — \$ 215.00

HIGH SPEED STEEL

◆ METRIC TAP AND DRILL SET

MADE IN U.S.A.



SET NO. 773S

16 Piece Set
Contains 1 piece of each
Drill and Tap.
Supplied in vinyl pouch.

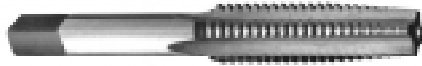
SET PRICE — \$ 74.50

| 8 TAPS | | 8 DRILLS | |
|------------|--|-------------|--|
| TAP SIZES | | DRILL SIZES | |
| M3 x 0.5 | | 2.50 | |
| M3.5 x 0.6 | | 2.90 | |
| M4 x 0.7 | | 3.30 | |
| M5 x 0.8 | | 4.20 | |
| M6 x 1.0 | | 5.00 | |
| M8 x 1.25 | | 6.75 | |
| M10 x 1.5 | | 8.50 | |
| M12 x 1.75 | | 10.25 | |

HIGH SPEED STEEL
SPECIAL THREAD TAPS

GROUND THREAD

■ LIST NO. 779



Please specify plug, bottoming or taper chamfer when ordering.

| Size | Threads Per Inch Available | Price Each | Size | Threads Per Inch Available | Price Each |
|-------|---|------------|---------|---|------------|
| 0 | 76 | 9.40 | 1-1/16 | 8, 10, 12, 14, 16, 18, 20, 24, 27, 28, 32 | 47.50 |
| 4 | 32 | 9.40 | 1-1/8 | 10, 14, 16, 18, 20, 24, 27, 28, 32 | 49.67 |
| 5 | 32, 36 | 9.85 | 1-5/32 | 14 | 62.40 |
| 6 | 36, 38, 48, 56, 60 | 8.50 | 1-3/16 | 8, 10, 12, 14, 16, 18, 20, 24, 27, 32 | 62.40 |
| 7 | 36, 40, 48 | 9.85 | 1-1/4 | 10, 14, 16, 18, 20, 24, 26, 27, 28, 32 | 62.40 |
| 8 | 24, 30, 40, 48, 56, 60 | 8.50 | 1-5/16 | 6, 11, 24 | 80.70 |
| 9 | 24 | 9.85 | 1-3/8 | 10, 14, 16, 18, 20, 24 | 80.70 |
| 10 | 28, 30, 36, 40, 48, 60 | 8.50 | 1-7/16 | 8, 12, 16, 18, 20, 27 | 106.00 |
| 12 | 32, 36, 40, 48 | 8.50 | 1-1/2 | 4, 10, 14, 16, 18, 20, 24, 28, 32 | 107.20 |
| 14 | 20, 24 | 9.85 | 1-9/16 | 12, 16, 18, 20 | 115.00 |
| 3/32 | 50 | 9.40 | 1-5/8 | 5-1/2, 10, 12, 14, 16, 18, 20 | 118.14 |
| 1/8 | 44, 48 | 9.40 | 1-11/16 | 12, 16, 18, 20, 27 | 135.00 |
| 5/32 | 32, 36, 40 | 8.50 | 1-3/4 | 5, 6, 10, 12, 14, 16, 18, 20, 24, 36 | 149.90 |
| 3/16 | 16, 18, 24, 32 | 8.50 | 1-13/16 | 8, 10, 12, 14, 16, 18, 20 | 165.00 |
| 7/32 | 28, 32, 40 | 8.50 | 1-7/8 | 5, 10, 12, 14, 16, 18, 20, 26 | 180.12 |
| 1/4 | 18, 22, 24, 26, 27, 30, 32, 36, 38, 40, 48, 56, 60 | 7.10 | 1-15/16 | 8, 10, 12, 16, 18, 20 | 190.00 |
| 9/32 | 32, 40 | 7.40 | 2 | 6, 10, 14, 16, 18, 20 | 195.00 |
| 5/16 | 13, 20, 22, 26, 27, 28, 30, 32, 36, 40 | 7.40 | 2-1/16 | 12 | 206.00 |
| 11/32 | 32 | 8.35 | 2-1/8 | 12, 16, 18 | 210.36 |
| 3/8 | 13, 14, 18, 20, 22, 24, 27, 28, 30, 32, 36, 40 | 8.65 | 2-1/4 | 4-1/2, 12, 14, 16, 18 | 225.00 |
| 13/32 | 20, 32 | 9.56 | 2-5/16 | 12, 14, 16, 18 | 230.00 |
| 7/16 | 12, 16, 18, 24, 26, 27, 28, 32, 40 | 9.56 | 2-3/8 | 12, 16, 18 | 235.00 |
| 15/32 | 24, 32, 40 | 10.90 | 2-1/2 | 4, 12, 16 | 290.00 |
| 1/2 | 11, 12, 14, 16, 18, 20, 22, 24, 26, 28, 32, 36, 37, 40, 48, 50 | 10.90 | 2-9/16 | 12 | 325.00 |
| 17/32 | 32 | 13.50 | 2-5/8 | 8, 12, 16, 18 | 365.00 |
| 9/16 | 10, 13, 16, 20, 24, 27, 28, 32, 36, 40, 48 | 13.50 | 2-3/4 | 12, 16, 18 | 449.00 |
| 5/8 | 10, 12, 13, 14, 16, 20, 24, 26, 27, 28, 30, 32, 36, 40, 48 | 15.20 | 2-7/8 | 8, 12, 16 | 465.00 |
| 11/16 | 12, 18, 20, 24, 27, 30, 32, 36, 40 | 17.50 | 3 | 4, 12, 16, 18 | 523.00 |
| 3/4 | 8, 11, 11-1/2, 12, 14, 18, 20, 22, 24, 26, 27, 28, 30, 32, 36, 40, 48, 50 | 18.80 | 3-1/8 | 8, 12 | 570.00 |
| 13/16 | 8, 10, 12, 14, 16, 18, 20, 24, 26, 27, 28, 32, 36 | 18.80 | 3-1/4 | 8, 12 | 605.00 |
| 7/8 | 8, 10, 11, 12, 16, 18, 20, 24, 26, 27, 28, 30, 32, 36, 40 | 22.90 | 3-1/2 | 4, 8, 12 | 676.00 |
| 15/16 | 9, 10, 12, 14, 16, 18, 20, 24, 27, 32 | 24.20 | 3-3/4 | 8, 12 | 789.00 |
| 1 | 7, 9, 10, 11, 16, 18, 20, 24, 26, 27, 28, 30, 32, 36, 40, 50 | 28.76 | 4 | 8, 12 | 888.00 |
| | | 32.80 | 4-1/2 | 12 | 1659.00 |

HIGH SPEED STEEL

EIGHT PITCH TAPS

GROUND THREAD

● LIST NO. 788



Please specify plug, bottoming or taper chamfer when ordering.

| Size | No. of Flutes | Price Each |
|-------|---------------|------------|
| 1-1/8 | 4 | 85.25 |
| 1-1/4 | 4 | 101.25 |
| 1-3/8 | 4 | 130.54 |
| 1-1/2 | 6 | 151.86 |
| 1-5/8 | 6 | 195.83 |
| 1-3/4 | 6 | 218.39 |
| 1-7/8 | 6 | 258.39 |
| 2 | 6 | 274.38 |
| 2-1/8 | 6 | 319.58 |
| 2-1/4 | 6 | 359.59 |
| 2-3/8 | 6 | 439.48 |
| 2-1/2 | 6 | 495.47 |
| 2-3/4 | 6 | 572.68 |
| 3 | 6 | 689.21 |
| 3-1/2 | 8 | 1435.39 |
| 4 | 8 | 1957.46 |

HIGH SPEED STEEL

LEFT HAND TAPS

GROUND THREAD, PLUG CHAMFER

▶ LIST NO. 770L



Please specify plug, bottoming or taper chamfer when ordering.

| Size | Threads Per Inch | Threads Limits | No. of Flutes | Price Each | Size | Threads Per Inch | Threads Limits | No. of Flutes | Price Each |
|------|------------------|----------------|---------------|------------|-------|------------------|----------------|---------------|------------|
| 6 | 32 | H3 | 3 | 10.24 | 5/8 | 18 | H3 | 4 | 49.19 |
| 6 | 40 | H3 | 3 | 10.24 | 11/16 | 11 | H3 | 4 | 54.15 |
| 8 | 32 | H3 | 4 | 10.24 | 11/16 | 16 | H3 | 4 | 54.15 |
| 8 | 36 | H3 | 4 | 10.24 | 3/4 | 10 | H3 | 4 | 64.15 |
| 10 | 24 | H3 | 4 | 10.24 | 3/4 | 16 | H3 | 4 | 64.15 |
| 10 | 32 | H3 | 4 | 10.24 | 7/8 | 9 | H4 | 4 | 87.09 |
| 1/4 | 20 | H3 | 4 | 11.99 | 7/8 | 14 | H4 | 4 | 87.09 |
| 1/4 | 28 | H3 | 4 | 11.99 | 1 | 8 | H4 | 4 | 113.99 |
| 1/4 | 32 | H3 | 4 | 11.99 | 1 | 12 | H4 | 4 | 113.99 |
| 5/16 | 18 | H3 | 4 | 13.29 | 1 | 14 | H4 | 4 | 113.99 |
| 5/16 | 24 | H3 | 4 | 13.29 | 1-1/8 | 7 | H4 | 4 | 191.80 |
| 3/8 | 16 | H3 | 4 | 17.19 | 1-1/8 | 12 | H4 | 4 | 191.80 |
| 3/8 | 24 | H3 | 4 | 17.19 | 1-1/4 | 7 | H4 | 4 | 242.14 |
| 7/16 | 14 | H3 | 4 | 21.99 | 1-1/4 | 12 | H4 | 4 | 242.14 |
| 7/16 | 20 | H3 | 4 | 21.99 | 1-3/8 | 6 | H4 | 4 | 301.56 |
| 1/2 | 13 | H3 | 4 | 25.99 | 1-3/8 | 12 | H4 | 4 | 301.56 |
| 1/2 | 20 | H3 | 4 | 25.99 | 1-1/2 | 6 | H4 | 4 | 350.00 |
| 9/16 | 12 | H3 | 4 | 38.78 | 1-1/2 | 12 | H4 | 4 | 350.00 |
| 9/16 | 18 | H3 | 4 | 38.78 | 1-3/4 | 8 | H4 | 4 | 379.00 |
| 5/8 | 11 | H3 | 4 | 49.19 | | | | | |

COMBINED TAP AND DRILL – THREDDRILL

GROUND THREAD — 2 FLUTE



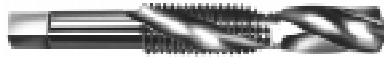
FRACTIONAL SIZES

| Nominal Size | Drill Size | Thread Length | Overall Length | Price Each |
|--------------|------------|---------------|----------------|------------|
| 1/4-20 | .2080 | 13/16 | 2-1/2 | 14.99 |
| 1/4-28 | .2200 | 23/32 | 2-1/2 | 15.99 |
| 5/16-18 | .2660 | 31/32 | 2-27/32 | 21.99 |
| 5/16-24 | .2770 | 7/8 | 2-27/32 | 21.99 |
| 3/8-16 | .3225 | 1-1/8 | 3-3/8 | 25.99 |
| 3/8-24 | .3395 | 1 | 3-3/8 | 25.99 |
| 7/16-14 | .3770 | 1-5/16 | 3-3/4 | 33.50 |
| 7/16-20 | .3955 | 1-3/16 | 3-3/4 | 33.50 |
| 1/2-13 | .4350 | 1-15/32 | 4-1/16 | 38.70 |
| 1/2-20 | .4580 | 1-15/16 | 4-1/16 | 38.70 |
| 5/8-11 | .5750 | 1-3/4 | 5 | 79.50 |
| 3/4-10 | .7200 | 2 | 6 | 99.00 |

■ LIST NO. 789

MACHINE SCREW SIZES

| Nominal Size | Drill Size | Thread Length | Overall Length | Price Each |
|--------------|------------|---------------|----------------|------------|
| 4-40 | .0910 | 3/8 | 1-7/8 | 14.99 |
| 4-48 | .0945 | 11/32 | 1-7/8 | 14.99 |
| 5-40 | .1040 | 13/32 | 1-15/16 | 14.99 |
| 6-32 | .1115 | 15/32 | 2 | 14.99 |
| 6-40 | .1170 | 7/16 | 2 | 14.99 |
| 8-32 | .1375 | 33/64 | 2-1/8 | 14.99 |
| 10-24 | .1545 | 5/8 | 2-3/8 | 14.99 |
| 10-32 | .1635 | 9/16 | 2-3/8 | 14.99 |
| 12-24 | .1805 | 11/16 | 2-3/8 | 14.99 |
| 12-28 | .1860 | 21/32 | 2-3/8 | 15.99 |



Designed to drill and tap thru holes in a single pass up to two times the tap diameter. Also can be used on multiple spindle heads with reversing mechanisms.

METRIC SIZES

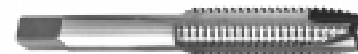
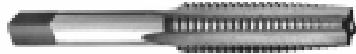
| Nominal Size | Drill Size | Thread Length | Overall Length | Price Each |
|--------------|------------|---------------|----------------|------------|
| M3 X .5 | .1015 | 13/32 | 1-15/16 | 15.99 |
| M3.5 X .6 | .1181 | 7/16 | 2 | 15.99 |
| M4 X .7 | .1339 | 1/2 | 2-1/8 | 15.99 |
| M4.5X.75 | .1520 | 7/8 | 2-3/8 | 15.99 |
| M5 X .8 | .1695 | 5/8 | 2-3/8 | 15.99 |
| M6 X 1 | .2031 | 25/32 | 2-1/2 | 15.99 |
| M7 X 1 | .2420 | 15/16 | 2-27/32 | 29.99 |
| M8 X 1.25 | .2735 | 15/16 | 2-27/32 | 29.99 |
| M10 X 1.5 | .3445 | 1-1/16 | 3-3/8 | 33.99 |
| M12 X 1.75 | .4134 | 1-3/8 | 4-1/16 | 33.99 |

PIPE SIZES

| Nominal Size | Drill Size | Thread Length | Overall Length | Price Each |
|--------------|------------|---------------|----------------|------------|
| 1/16-27 | .2420 | 11/16 | 2-13/16 | 57.59 |
| 1/8-27 | .3320 | 3/4 | 2-7/8 | 72.63 |
| 1/4-18 | .4370 | 1-1/16 | 3-5/16 | 82.44 |
| 3/8-18 | .5620 | 1-1/16 | 3-1/2 | 95.12 |
| 1/2-14 | .7030 | 1-3/8 | 4-3/8 | 144.65 |
| 3/4-14 | .9060 | 1-3/8 | 4-9/16 | 201.98 |
| 1-11-1/2 | 1.1410 | 1-3/4 | 5-3/8 | 303.00 |

SCREW THREAD INSERT TAPS (STI)

- LIST NO. 770STI — HAND TAP (PLUG OR BOTTOMING CHAMFER)
- LIST NO. 780STI — SPIRAL POINTED TAP (PLUG CHAMFER)



STI Taps are oversized to the extent that the external thread produced will accommodate a helical coil wire screw thread insert, which at final assembly will accept a screw thread of nominal size and pitch.

| Size | Threads Per Inch | Thread Limits | Hand Tap | | Spiral Pointed | |
|------|------------------|---------------|---------------|-----------------|----------------|-----------------|
| | | | No. of Flutes | List No. 770STI | No. of Flutes | List No. 780STI |
| 4 | 40 | H2 | 3 | 21.89 | 2 | 23.20 |
| 6 | 32 | H3 | 3 | 21.89 | 2 | 23.20 |
| 8 | 32 | H3 | 3 | 21.89 | 2 | 23.20 |
| 10 | 24 | H3 | 3 | 23.49 | 2 | 24.90 |
| 10 | 32 | H3 | 3 | 23.49 | 2 | 24.90 |
| 1/4 | 20 | H3 | 3 | 24.19 | 2 | 25.64 |
| 1/4 | 28 | H3 | 3 | 24.19 | 2 | 25.64 |
| 5/16 | 18 | H3 | 4 | 26.29 | 3 | 27.87 |
| 5/16 | 24 | H3 | 4 | 26.28 | 3 | 27.86 |

| Size | Threads Per Inch | Thread Limits | Hand Tap | | Spiral Pointed | |
|------|------------------|---------------|---------------|-----------------|----------------|-----------------|
| | | | No. of Flutes | List No. 770STI | No. of Flutes | List No. 780STI |
| 3/8 | 16 | H3 | 4 | 32.48 | 3 | 34.43 |
| 3/8 | 24 | H3 | 4 | 32.48 | 3 | 34.43 |
| 7/16 | 14 | H3 | 4 | 40.08 | 3 | 42.48 |
| 7/16 | 20 | H3 | 4 | 40.08 | 3 | 42.48 |
| 1/2 | 13 | H3 | 4 | 45.29 | 3 | 48.01 |
| 1/2 | 20 | H3 | 4 | 45.29 | 3 | 48.01 |
| 9/16 | 12 | H3 | 4 | 49.95 | — | — |
| 3/4 | 10 | H3 | 4 | 58.89 | — | — |
| 1 | 8 | H3 | 4 | 72.00 | — | — |

Please specify plug or bottoming chamfer when ordering hand taps.

ACME TANDEM STYLE TAPS



CLASS 2G

- LIST NO. 787 — RIGHT HAND
- LIST NO. 787L — LEFT HAND

Tandem style tap eliminates the excessive cost of producing Acme threads. It produces threads from a 10° to 30° included angle in a single pass without a lead-screw. The last few threads on the roughing section function as a guide for the short finishing section, which corrects the angles and brings the threads to size.

| Size | Threads Per Inch | Thread Length | Overall Length | Price Each | |
|------|------------------|---------------|----------------|--------------|---------------|
| | | | | List No. 787 | List No. 787L |
| 3/8 | 12 | 2-1/2 | 5 | 87.95 | 118.00 |
| 1/2 | 10 | 2-9/16 | 5 | 87.95 | 99.20 |
| 5/8 | 8 | 3-3/16 | 6-1/4 | 98.50 | 115.30 |
| 3/4 | 6 | 4-5/16 | 7-15/16 | 134.75 | 156.20 |
| 3/4 | 8 | 4-5/16 | 7-15/16 | 145.00 | 170.00 |
| 7/8 | 6 | 4-3/8 | 8-5/8 | 157.50 | 190.10 |

| Size | Threads Per Inch | Thread Length | Overall Length | Price Each | |
|-------|------------------|---------------|----------------|--------------|---------------|
| | | | | List No. 787 | List No. 787L |
| 1 | 5 | 5-1/4 | 10-1/8 | 164.40 | 199.85 |
| 1-1/8 | 5 | 5-1/4 | 10-3/4 | 176.25 | 266.96 |
| 1-1/4 | 5 | 5-1/4 | 11-1/8 | 210.00 | 295.00 |
| 1-3/8 | 4 | 5-7/8 | 12-1/4 | 264.00 | 328.00 |
| 1-1/2 | 4 | 5-7/8 | 12-5/8 | 281.50 | 365.00 |
| 2 | 4 | 6-1/2 | 14-7/8 | 335.00 | 399.00 |

PIPE TAPS

H.S. TAPER PIPE TAPS

GROUND THREAD

- LIST NO. 790 — NPT QUALITY IMPORT
- LIST NO. 790U — NPT MADE IN U.S.A.
- LIST NO. 790F — NPTF DRYSEAL QUALITY IMPORT



SET NO. 790S
 4 piece taper pipe tap set
 Contains 1 piece of each:
 1/8, 1/4, 3/8, 1/2.
SET PRICE — \$125.00

Taper pipe taps are utilized to thread pipe fittings hence their nominal size is of the pipe being threaded.

| Size | Threads Per Inch | Price Each | | |
|-------|------------------|-----------------------------|----------------------------------|-------------------------------|
| | | H.S. NPT Taper List No. 790 | H.S. USA NPT Taper List No. 790U | H.S. NPTF Taper List No. 790F |
| 1/16 | 27 | 21.75 | 27.70 | 23.18 |
| 1/8 | 27(sm/sk) | 21.75 | 27.70 | — |
| 1/8 | 27(lg/sk) | 21.75 | 27.70 | 23.18 |
| 1/4 | 18 | 23.96 | 30.60 | 25.55 |
| 3/8 | 18 | 31.65 | 40.40 | 33.75 |
| 1/2 | 14 | 50.18 | 64.00 | 53.50 |
| 3/4 | 14 | 70.20 | 89.65 | 74.88 |
| 1 | 11-1/2 | 107.83 | 135.80 | 115.00 |
| 1-1/4 | 11-1/2 | 154.70 | 195.00 | 165.00 |
| 1-1/2 | 11-1/2 | 213.30 | 261.00 | 227.50 |
| 2 | 11-1/2 | 281.08 | 354.25 | 299.80 |
| 2-1/2 | 8 | 508.95 | 745.00 | 695.00 |
| 3 | 8 | 645.00 | 1050.00 | 785.00 |
| 3-1/2 | 8 | 936.68 | 1110.00 | — |
| 4 | 8 | 1290.38 | 1425.00 | — |

H.S. STRAIGHT TAPER PIPE TAPS

GROUND THREAD

- LIST NO. 791 — NPS QUALITY IMPORT
- LIST NO. 791U — NPS MADE IN U.S.A.
- LIST NO. 791F — NPSF DRYSEAL QUALITY IMPORT



| Size | Threads Per Inch | Price Each | | |
|-------|------------------|--------------------------------|-------------------------------------|----------------------------------|
| | | H.S. NPS Straight List No. 791 | H.S. USA NPS Straight List No. 791U | H.S. NPSF Straight List No. 791F |
| 1/16 | 27 | 23.35 | 29.99 | 24.90 |
| 1/8 | 27 | 23.35 | 29.99 | 24.90 |
| 1/4 | 18 | 26.10 | 33.25 | 27.81 |
| 3/8 | 18 | 34.10 | 43.50 | 36.36 |
| 1/2 | 14 | 54.38 | 69.49 | 57.99 |
| 3/4 | 14 | 76.23 | 97.50 | 81.30 |
| 1 | 11-1/2 | 115.87 | 148.00 | 123.60 |
| 1-1/4 | 11-1/2 | 155.58 | 207.00 | 169.50 |
| 1-1/2 | 11-1/2 | 213.38 | 269.00 | 169.50 |
| 2 | 11-1/2 | 286.75 | 385.00 | 320.00 |
| 2-1/2 | 8 | 745.00 | — | 745.00 |
| 3 | 8 | 1050.00 | — | 1050.00 |
| 3-1/2 | 8 | 1110.00 | — | — |
| 4 | 8 | 1290.00 | 1425.00 | — |

H.S. INTERRUPTED THREAD TAPER PIPE TAPS

GROUND THREAD

- LIST NO. 792 — INT/NPT QUALITY IMPORT
- LIST NO. 792U — INT/NPT MADE IN U.S.A.
- LIST NO. 792F — INT/NPTF DRYSEAL QUALITY IMPORT



For tapping tough, or gummy metals that have a tendency to load the tap teeth.

| Size | Threads Per Inch | Price Each | | |
|-------|------------------|---------------------------|--------------------------------|-----------------------------|
| | | H.S. INT/NPT List No. 792 | H.S. USA INT/NPT List No. 792U | H.S. INT/NPTF List No. 792F |
| 1/16 | 27 | 32.63 | 43.00 | 34.79 |
| 1/8 | 27 | 32.63 | 43.00 | 34.79 |
| 1/4 | 18 | 36.10 | 47.70 | 38.50 |
| 3/8 | 18 | 46.43 | 60.19 | 49.50 |
| 1/2 | 14 | 72.38 | 96.00 | 77.19 |
| 3/4 | 14 | 102.83 | 135.74 | 109.67 |
| 1 | 11-1/2 | 161.73 | 209.80 | 172.50 |
| 1-1/4 | 11-1/2 | 230.80 | 295.00 | 246.17 |
| 1-1/2 | 11-1/2 | 309.85 | 396.29 | 330.50 |
| 2 | 11-1/2 | 417.15 | 533.29 | 444.96 |

CARBON TAPER PIPE TAPS

CUT THREAD

- LIST NO. 793 — RIGHT HAND — NPT QUALITY IMPORT
- LIST NO. 793U — RIGHT HAND — NPT MADE IN U.S.A.
- LIST NO. 793L — LEFT HAND — NPT



SET NO. 793S
 4 piece carbon RH taper pipe tap set
 Contains 1 piece of each:
 1/8, 1/4, 3/8, 1/2.
SET PRICE — \$53.00

| Size | Threads Per Inch | Price Each | | |
|-------|------------------|---------------------------|--------------------------------|-----------------------------|
| | | NPT Straight List No. 793 | USA NPT Straight List No. 793U | NPT Left Hand List No. 793L |
| 1/16 | 27 | 8.73 | 10.97 | 12.09 |
| 1/8 | 27 | 8.73 | 10.97 | 12.09 |
| 1/4 | 18 | 10.05 | 12.94 | 13.91 |
| 3/8 | 18 | 13.32 | 16.75 | 18.46 |
| 1/2 | 14 | 17.70 | 22.24 | 24.50 |
| 3/4 | 14 | 28.32 | 35.63 | 39.26 |
| 1 | 11-1/2 | 41.72 | 52.51 | 57.85 |
| 1-1/4 | 11-1/2 | 49.23 | 61.95 | 68.25 |
| 1-1/2 | 11-1/2 | 69.50 | 87.46 | 96.35 |
| 2 | 11-1/2 | 106.43 | 133.93 | — |
| 2-1/2 | 8 | 199.00 | — | — |
| 3 | 8 | 269.00 | — | — |
| 3-1/2 | 8 | 469.00 | — | — |
| 4 | 8 | 625.00 | — | — |

LONG REACH NPT PIPE TAPS

GROUND THREAD

● LIST NO. 797 — NPT



| Size | Threads Per Inch | Price Each | | | |
|------|------------------|------------|--------|--------|---------|
| | | 4" OAL | 6" OAL | 8" OAL | 12" OAL |
| 1/16 | 27 | 25.50 | 30.75 | — | — |
| 1/8 | 27 | 29.50 | 30.75 | 37.50 | — |
| 1/4 | 18 | — | 35.25 | 39.75 | 59.00 |
| 3/8 | 18 | — | 44.17 | — | 67.67 |
| 1/2 | 14 | — | 56.75 | — | 96.95 |
| 3/4 | 14 | — | 80.75 | 125.00 | 149.00 |
| 1 | 11-1/2 | — | 115.00 | 175.00 | 195.00 |

6" EXTENSION TAPS

GROUND THREAD, PLUG CHAMFER

- LIST NO. 795EX — HAND TAPS
- LIST NO. 796EX — SPIRAL POINTED



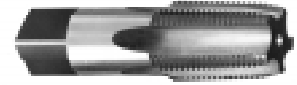
Similar to a pulley tap but with a smaller shank diameter for long reach applications.

| Size | Threads Per Inch | Price Each | |
|------|------------------|----------------|----------------|
| | | List No. 795EX | List No. 796EX |
| 10 | 24 | 37.00 | 38.02 |
| 10 | 32 | 37.00 | 38.02 |
| 1/4 | 20 | 36.15 | 40.80 |
| 5/16 | 18 | 37.60 | 42.40 |
| 3/8 | 16 | 42.50 | 47.88 |
| 1/2 | 13 | 45.00 | 51.30 |

BRITISH STANDARD PIPE TAPS (BSPT)

GROUND THREAD

● LIST NO. 794



| Size | Threads Per Inch | Price Each |
|-------|------------------|------------|
| 1/8 | 28 | 34.90 |
| 1/4 | 19 | 38.83 |
| 3/8 | 19 | 51.20 |
| 1/2 | 14 | 81.00 |
| 5/8 | 14 | 94.90 |
| 3/4 | 14 | 110.83 |
| 1 | 11 | 167.40 |
| 1-1/4 | 11 | 253.13 |
| 1-1/2 | 11 | 331.88 |

SPIRAL FLUTE TAPER PIPE TAPS

GROUND THREAD

● LIST NO. 790SP



| Size | Threads Per Inch | Price Each |
|------|------------------|------------|
| 1/16 | 27 | 43.60 |
| 1/8 | 27 | 43.60 |
| 1/4 | 18 | 53.90 |
| 3/8 | 18 | 67.00 |
| 1/2 | 14 | 84.50 |
| 3/4 | 14 | 128.00 |
| 1 | 11-1/2 | 161.00 |

These taps have helically ground flutes that lift the chips from the hole being tapped. This action continuously draws chips from the hole and prevents clogging. They are most effective when used in applications that produce long stringy chips.

PULLEY TAPS

GROUND THREAD, PLUG CHAMFER



● LIST NO. 796
SPIRAL POINTED TAPS

| Size | Threads Per Inch | No. of Flutes | Price Each |
|------|------------------|---------------|---------------------|
| | | | 6" OAL List No. 796 |
| 6 | 32 | 2 | 38.02 |
| 8 | 32 | 2 | 38.02 |
| 10 | 24 | 2 | 38.02 |
| 10 | 32 | 2 | 38.02 |
| 1/4 | 20 | 2 | 40.80 |
| 1/4 | 28 | 2 | 40.80 |
| 5/16 | 18 | 2 | 42.40 |
| 5/16 | 24 | 2 | 42.40 |
| 3/8 | 16 | 3 | 47.88 |
| 3/8 | 24 | 3 | 47.88 |
| 7/16 | 14 | 3 | 50.16 |
| 7/16 | 20 | 3 | 50.16 |
| 1/2 | 13 | 3 | 51.30 |
| 1/2 | 20 | 3 | 51.30 |
| 5/8 | 11 | 3 | 67.26 |
| 5/8 | 18 | 3 | 67.26 |
| 3/4 | 10 | 3 | 98.50 |
| 3/4 | 16 | 3 | 98.50 |
| 7/8 | 14 | 3 | 119.00 |

● LIST NO. 795 — HAND TAPS

| Size | Threads Per Inch | No. of Flutes | Price Each | |
|-------|------------------|---------------|---------------------|---------------------|
| | | | 6" OAL List No. 795 | 8" OAL List No. 795 |
| 6 | 32 | 4 | 33.35 | 43.75 |
| 8 | 32 | 4 | 33.35 | 43.75 |
| 10 | 24 | 4 | 33.35 | 43.75 |
| 10 | 32 | 4 | 33.35 | 43.75 |
| 1/4 | 20 | 4 | 38.00 | 46.40 |
| 1/4 | 28 | 4 | 38.00 | 46.40 |
| 5/16 | 18 | 4 | 39.85 | 47.70 |
| 5/16 | 24 | 4 | 39.85 | 47.70 |
| 3/8 | 16 | 4 | 44.85 | 53.30 |
| 3/8 | 24 | 4 | 44.85 | 53.30 |
| 7/16 | 14 | 4 | 47.70 | 62.50 |
| 7/16 | 20 | 4 | 47.70 | 62.50 |
| 1/2 | 13 | 4 | 48.10 | 62.50 |
| 1/2 | 20 | 4 | 48.10 | 62.50 |
| 5/8 | 11 | 4 | 64.30 | 82.00 |
| 5/8 | 18 | 4 | 64.30 | 82.00 |
| 3/4 | 10 | 4 | 87.50 | 107.00 |
| 3/4 | 16 | 4 | 87.50 | 107.00 |
| 1-3/8 | 12 | 6 | — | 295.00 |

● LIST NO. 795 — HAND TAPS

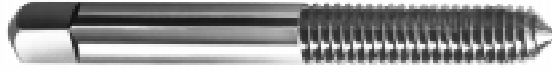
| Size | Threads Per Inch | No. of Flutes | Price Each | |
|------|------------------|---------------|----------------------|----------------------|
| | | | 10" OAL List No. 795 | 12" OAL List No. 795 |
| 1/4 | 20 | 4 | 58.00 | — |
| 1/4 | 28 | 4 | 58.00 | — |
| 5/16 | 18 | 4 | 62.00 | — |
| 5/16 | 24 | 4 | 62.00 | — |
| 3/8 | 16 | 4 | 66.75 | — |
| 3/8 | 24 | 4 | 66.75 | — |
| 7/16 | 14 | 4 | 73.50 | — |
| 7/16 | 20 | 4 | 73.50 | — |
| 1/2 | 13 | 4 | 76.00 | 94.44 |
| 1/2 | 20 | 4 | 76.00 | 94.44 |
| 5/8 | 11 | 4 | 103.00 | 120.00 |
| 5/8 | 18 | 4 | 103.00 | 120.00 |
| 3/4 | 10 | 4 | 121.35 | 134.00 |
| 3/4 | 16 | 4 | 121.35 | 134.00 |
| 7/8 | 9 | 4 | — | 199.00 |

H.S. THREAD FORMING CHIPLESS TAPS

GROUND THREAD

● LIST NO. 783

Please specify plug or bottoming chamfer.



Threading holes with a thread forming tap is a cold forming process accomplished without cutting. Threads produced by this tap are stronger than conventional cut threads because of the swaging and work hardening effect. There are no chips and no cutting edges to become dull and breakdown, therefore tap breakage is minimized. Chipless tapping also eliminates the sometimes costly chip removal from the threaded work. Thread forming taps permit faster tapping speeds.

| Size | Threads Per Inch | Price Each |
|------|------------------|------------|
| 0* | 80 | 19.30 |
| 1* | 64 | 19.30 |
| 1* | 72 | 19.30 |
| 2* | 56 | 19.18 |
| 2* | 64 | 19.18 |
| 3* | 48 | 19.18 |
| 3* | 56 | 19.18 |
| 4 | 40 | 17.32 |
| 4 | 48 | 17.32 |
| 5 | 40 | 17.32 |
| 6 | 32 | 14.24 |
| 6 | 40 | 14.24 |

| Size | Threads Per Inch | Price Each |
|------|------------------|------------|
| 8 | 32 | 14.24 |
| 8 | 36 | 14.24 |
| 10 | 24 | 14.24 |
| 10 | 32 | 14.24 |
| 12 | 24 | 15.10 |
| 12 | 28 | 15.10 |
| 1/4 | 20 | 15.10 |
| 1/4 | 28 | 15.10 |
| 5/16 | 18 | 16.83 |
| 5/16 | 24 | 16.83 |
| 3/8 | 16 | 19.18 |

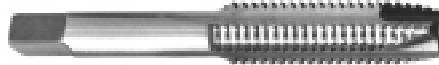
| Size | Threads Per Inch | Price Each |
|------|------------------|------------|
| 3/8 | 24 | 19.18 |
| 7/16 | 14 | 26.50 |
| 7/16 | 20 | 26.50 |
| 1/2 | 13 | 32.75 |
| 1/2 | 20 | 32.75 |
| 9/16 | 12 | 37.50 |
| 9/16 | 18 | 37.50 |
| 5/8 | 11 | 46.70 |
| 5/8 | 18 | 46.70 |
| 3/4 | 10 | 60.77 |
| 3/4 | 16 | 60.77 |

* Available bottoming only.

COBALT SPIRAL POINTED TAPS

GROUND THREAD, PLUG CHAMFER

● LIST NO. 780C



| Size | Threads Per Inch | No. of Flutes | Price Each |
|------|------------------|---------------|------------|
| 6 | 32 | 2 | 13.95 |
| 8 | 32 | 2 | 13.95 |
| 10 | 24 | 2 | 13.95 |
| 10 | 32 | 2 | 13.95 |
| 1/4 | 20 | 3 | 18.50 |

| Size | Threads Per Inch | No. of Flutes | Price Each |
|------|------------------|---------------|------------|
| 5/16 | 18 | 3 | 20.50 |
| 3/8 | 16 | 3 | 23.40 |
| 7/16 | 14 | 3 | 33.20 |
| 1/2 | 13 | 3 | 38.00 |
| 5/8 | 11 | 3 | 84.95 |

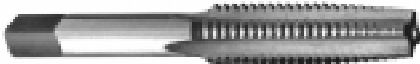


SOLID CARBIDE TAPS

MICRO-GRAIN

GROUND THREAD, H3 LIMIT, PLUG CHAMFER

- LIST NO. CT770— HAND TAPS
- LIST NO. CT780— SPIRAL POINTED TAPS



| Size | Threads Per Inch | List No. CT770 | List No. CT780 |
|------|------------------|----------------|----------------|
| 6 | 32 | 140.00 | 147.65 |
| 8 | 32 | 144.00 | 151.06 |
| 10 | 24 | 147.20 | 153.50 |
| 10 | 32 | 147.20 | 153.50 |
| 1/4 | 20 | 166.65 | 188.57 |
| 5/16 | 18 | 190.00 | 210.00 |
| 3/8 | 16 | 237.00 | 274.00 |
| 7/16 | 14 | 385.00 | — |
| 1/2 | 13 | 420.00 | — |
| 5/8 | 11 | 606.50 | — |

H.S. NUT TAPS

GROUND THREAD

▶ LIST NO. 798 — FOUR FLUTE



Primarily used for threading nuts. Shank of tap is smaller than I.D. of nut allowing nuts to accumulate on the shank. Also used for long reach.

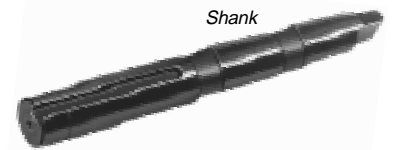
| Size | Threads per Inch | Overall Length | Price Each |
|------|------------------|----------------|------------|
| 1/4 | 20 | 5 | 97.99 |
| 1/4 | 28 | 5 | 97.99 |
| 5/16 | 18 | 5-1/2 | 111.98 |
| 5/16 | 24 | 5-1/2 | 111.98 |
| 3/8 | 16 | 6 | 136.49 |
| 3/8 | 24 | 6 | 136.49 |
| 7/16 | 14 | 6-1/2 | 154.89 |
| 7/16 | 20 | 6-1/2 | 154.89 |
| 1/2 | 13 | 7 | 167.98 |
| 1/2 | 20 | 7 | 167.98 |
| 3/4 | 10 | 9 | 192.00 |
| 1 | 8 | 11 | 295.00 |

FLOATING DIE AND TAP HOLDER SYSTEM

Cutting external and internal threads is simple, safe, accurate and inexpensive!

- **SIMPLE** — Cut threads on any lathe fitted with a Morse Taper tailstock
- **FASTER** — 4 to 5 times faster than threading with a single point tool
- **ACCURATE** — Improves thread quality with fewer part rejections over hand held method
- **SAFE** — Reduces chance for operator injury

FLOATING DIE HOLDER



| HEADS | | | | | SHANKS | | | |
|---------------|--------------------|--------------------|-------------|------------|--------------------|----------------------------|--------------|------------|
| Fits Die O.D. | Max. Thread Length | Fits Shank Number. | Head Number | Price Each | Morse Taper Number | Fits Head Number | Shank Number | Price Each |
| 13/16 | 2-3/8 | FDHS-2T | FDH81-2 | 56.35 | 2 | FDH1-2, FDH81-2 | FDHS-2T | 55.20 |
| 1 | 2-3/8 | FDHS-2T | FDH1-2 | 56.35 | 3 | FDH1-34, FDH15-34, FDH2-34 | FDHS-3T | 73.60 |
| 1 | 2-7/8 | FDHS-3T, FDHS-4T | FDH1-34 | 66.70 | 4 | FDH1-34, FDH15-34, FDH2-34 | FDHS-4T | 86.25 |
| 1-1/2 | 2-7/8 | FDHS-3T, FDHS-4T | FDH15-34 | 66.70 | 4 | FDH25-4HD5 | FDHS-4HD | 108.10 |
| 2 | 2-7/8 | FDHS-3T, FDHS-4T | FDH2-34 | 73.60 | 5 | FDH25-4HD5 | FDHS-5T | 161.00 |
| 2-1/2 | 3-7/8 | FDHS-4HD, FDHS-5T | FDH25-4HD5 | 112.70 | | | | |

FLOATING TAP HOLDER



| HEADS | | | | | SHANKS | | | |
|---------------|---------------------|--------------------|-------------|------------|--------------------|---------------------------------|--------------|------------|
| Tap Range | Nominal Head Travel | Fits Shank Number. | Head Number | Price Each | Morse Taper Number | Fits Head Number | Shank Number | Price Each |
| 0 — 1/4 | 2-3/8 | FDHS-2T | FTH-014 | 85.10 | 2 | FTH-014 | FDHS-2T | 55.20 |
| 1/4 — 1/2 | 2-7/8 | FDHS-3T, FDHS-4T | FTH-1412 | 108.10 | 3 | FTH-1412, FTH -1234 | FDHS-3T | 73.60 |
| 1/2 — 3/4 | 2-7/8 | FDHS-3T, FDHS-4T | FTH-1234 | 131.10 | 4 | FTH-1412, FTH -1234 | FDHS-4T | 86.25 |
| 3/4 — 1 | 3-7/8 | FDHS-4HD, FDHS-5T | FTH-3410 | 154.10 | 4 | FTH-3410, FTH -1114, FTH-114112 | FDHS-4HD | 108.10 |
| 1 — 1-1/4 | 3-7/8 | FDHS-4HD, FDHS-5T | FTH-1114 | 177.10 | 5 | FTH-3410, FTH -1114, FTH-114112 | FDHS-5T | 161.00 |
| 1-1/4 — 1-1/2 | 3-7/8 | FDHS-4HD, FDHS-5T | FTH-114112 | 201.25 | | | | |

Simulated tailstock assembly



Simulated tailstock assembly



THREADEX OPERATING INSTRUCTIONS

- Step 1** Select head to fit desired die O.D. or tap range, insert and secure die or tap.
- Step 2** Select appropriate shank and install into lathe tailstock.
- Step 3** Slide head onto shank and advance tailstock within proximity of work piece.
- Step 4** Lock tailstock and advance holder with tailstock crank until head begins to self feed.
- Step 5** Reverse lathe at desired point and reverse tailstock crank a few turns as head is backing off work piece.

STANDARD ROUND ADJUSTABLE SPLIT DIES

SCREW ADJUSTING TYPE

● LIST NO. 751 — RIGHT HAND



For cutting external screw threads either by hand with a die stock or by machine with a floating die holder like the unique Threadex® Floating Die Holder, see page 110. They can be utilized to cut smaller or larger tolerance by turning the adjusting screw.

FRACTIONAL AND MACHINE SCREW SIZES

| Size | Threads Per Inch | Price Each |
|------------------------|------------------|------------|
| 13/16" Diameter | | |
| 0 | 80 | 23.80 |
| 1 | 64 | 23.80 |
| 1 | 72 | 23.80 |
| 2 | 56 | 23.80 |
| 2 | 64 | 23.80 |
| 3 | 48 | 23.80 |
| 3 | 56 | 23.80 |
| 4 | 40 | 23.80 |
| 4 | 48 | 23.80 |
| 5 | 40 | 23.80 |
| 5 | 44 | 23.80 |
| 6 | 32 | 23.80 |
| 6 | 40 | 23.80 |
| 8 | 32 | 23.80 |
| 8 | 36 | 23.80 |
| 10 | 24 | 23.80 |
| 10 | 32 | 23.80 |
| 12 | 24 | 23.80 |
| 12 | 28 | 23.80 |
| 1/4 | 20 | 23.80 |
| 1/4 | 28 | 23.80 |
| 5/16 | 18 | 23.80 |
| 5/16 | 24 | 23.80 |
| 1" Diameter | | |
| 0 | 80 | 29.90 |
| 1 | 64 | 29.90 |
| 1 | 72 | 29.90 |
| 2 | 56 | 29.90 |
| 2 | 64 | 29.90 |
| 3 | 48 | 29.90 |
| 3 | 56 | 29.90 |
| 4 | 40 | 29.90 |
| 4 | 48 | 29.90 |
| 5 | 40 | 29.90 |
| 5 | 44 | 29.90 |
| 6 | 32 | 29.90 |
| 6 | 40 | 29.90 |
| 8 | 32 | 29.90 |
| 8 | 36 | 29.90 |
| 10 | 24 | 29.90 |
| 10 | 32 | 29.90 |
| 12 | 24 | 29.90 |

| Size | Threads Per Inch | Price Each |
|------------------------|------------------|------------|
| 1" Diameter | | |
| 12 | 28 | 29.90 |
| 1/4 | 20 | 29.90 |
| 1/4 | 28 | 29.90 |
| 5/16 | 18 | 29.90 |
| 5/16 | 24 | 29.90 |
| 3/8 | 16 | 29.90 |
| 3/8 | 24 | 29.90 |
| 7/16 | 14 | 29.90 |
| 7/16 | 20 | 29.90 |
| 1/2 | 13 | 29.90 |
| 1/2 | 20 | 29.90 |
| 1-1/2" Diameter | | |
| 1/4 | 20 | 45.00 |
| 1/4 | 28 | 45.00 |
| 5/16 | 18 | 45.00 |
| 5/16 | 24 | 45.00 |
| 3/8 | 16 | 45.00 |
| 3/8 | 24 | 45.00 |
| 7/16 | 14 | 45.00 |
| 7/16 | 20 | 45.00 |
| 1/2 | 13 | 45.00 |
| 1/2 | 20 | 45.00 |
| 9/16 | 12 | 45.00 |
| 9/16 | 18 | 45.00 |
| 5/8 | 11 | 45.00 |
| 5/8 | 18 | 45.00 |
| 11/16 | 11 | 45.00 |
| 11/16 | 16 | 45.00 |
| 3/4 | 10 | 45.00 |
| 3/4 | 16 | 45.00 |
| 2" Diameter | | |
| 1/4 | 20 | 76.90 |
| 1/4 | 28 | 76.90 |
| 5/16 | 18 | 76.90 |
| 5/16 | 24 | 76.90 |
| 3/8 | 16 | 76.90 |
| 3/8 | 24 | 76.90 |
| 7/16 | 14 | 76.90 |
| 7/16 | 20 | 76.90 |
| 1/2 | 13 | 76.90 |
| 1/2 | 20 | 76.90 |

| Size | Threads Per Inch | Price Each |
|------------------------|------------------|------------|
| 2" Diameter | | |
| 9/16 | 12 | 76.90 |
| 9/16 | 18 | 76.90 |
| 5/8 | 11 | 76.90 |
| 5/8 | 18 | 76.90 |
| 11/16 | 11 | 76.90 |
| 11/16 | 16 | 76.90 |
| 3/4 | 10 | 76.90 |
| 3/4 | 16 | 76.90 |
| 7/8 | 9 | 76.90 |
| 7/8 | 14 | 76.90 |
| 1 | 8 | 76.90 |
| 1 | 12 | 76.90 |
| 1 | 14 | 76.90 |
| 2-1/2" Diameter | | |
| 1 | 8 | 106.00 |
| 1 | 12 | 106.00 |
| 1 | 14 | 106.00 |
| 1-1/8 | 7 | 106.00 |
| 1-1/8 | 12 | 106.00 |
| 1-1/4 | 7 | 106.00 |
| 1-1/4 | 12 | 106.00 |
| 1-3/8 | 6 | 106.00 |
| 1-3/8 | 12 | 106.00 |
| 1-1/2 | 6 | 106.00 |
| 3" Diameter | | |
| 1 | 8 | 195.00 |
| 1 | 12 | 195.00 |
| 1 | 14 | 195.00 |
| 1-1/8 | 7 | 195.00 |
| 1-1/8 | 12 | 195.00 |
| 1-1/4 | 7 | 195.00 |
| 1-1/4 | 12 | 195.00 |
| 1-3/8 | 6 | 195.00 |
| 1-3/8 | 12 | 195.00 |
| 1-1/2 | 6 | 195.00 |
| 1-1/2 | 12 | 195.00 |
| 1-3/4 | 5 | 195.00 |
| 1-3/4 | 12 | 195.00 |
| 2 | 4-1/2 | 195.00 |
| 2 | 12 | 195.00 |

HIGH SPEED STEEL

NPT/NPS PIPE SIZES— RIGHT HAND

● LIST NO. 760 — NPT

| Size | Threads Per Inch | Price Each |
|------------------------|------------------|------------|
| 1" Diameter | | |
| 1/16 | 27 | 29.90 |
| 1/8 | 27 | 29.90 |
| 1-1/2" Diameter | | |
| 1/8 | 27 | 45.00 |
| 1/4 | 18 | 45.00 |
| 3/8 | 18 | 45.00 |
| 1/2 | 14 | 45.00 |
| 2" Diameter | | |
| 1/4 | 18 | 76.90 |
| 3/8 | 18 | 76.90 |
| 1/2 | 14 | 76.90 |
| 3/4 | 14 | 76.90 |

● LIST NO. 761 — NPS

| Size | Threads Per Inch | Price Each |
|------------------------|------------------|------------|
| 2-1/2" Diameter | | |
| 1 | 11-1/2 | 106.00 |
| 3" Diameter | | |
| 1-1/4 | 11-1/2 | 195.00 |
| 1-1/2 | 11-1/2 | 195.00 |
| 4" Diameter | | |
| 1-1/2 | 11-1/2 | 255.00 |
| 2 | 8 | 255.00 |
| 5" Diameter | | |
| 2-1/2 | 8 | 325.00 |
| 3 | 8 | 325.00 |

CARBON STEEL

NPT HEXAGON RETHREADING DIES

● LIST NO. 766 — QUALITY IMPORT
● LIST NO. 766U — MADE IN U.S.A.

| Size | Threads Per Inch | Price Each | |
|-------|------------------|--------------|---------------|
| | | List No. 766 | List No. 766U |
| 1/8 | 27 | 19.00 | 27.55 |
| 1/4 | 18 | 28.40 | 41.20 |
| 3/8 | 18 | 37.40 | 54.25 |
| 1/2 | 14 | 49.20 | 71.35 |
| 3/4 | 14 | 63.60 | 92.30 |
| 1 | 11-1/2 | 83.80 | 121.62 |
| 1-1/4 | 11-1/2 | 119.50 | — |
| 1-1/2 | 11-1/2 | 175.00 | — |
| 2 | 11-1/2 | 355.00 | — |
| 2-1/2 | 8 | 425.00 | — |
| 3 | 8 | 460.00 | — |

STANDARD ROUND ADJUSTABLE METRIC SPLIT DIES



SCREW ADJUSTING TYPE

● LIST NO. 753 — RIGHT HAND

For cutting external screw threads either by hand with a die stock or by machine with a floating die holder such as the unique Threadex® Floating Die Holder System. These dies can be utilized to cut smaller or larger tolerances by turning the adjusting screw.

| Size mm | Pitch mm | Price Each |
|------------------------|----------|------------|
| 13/16" Diameter | | |
| 1 | .25 | 23.80 |
| 1.2 | .25 | 23.80 |
| 1.4 | .30 | 23.80 |
| 1.6 | .35 | 23.80 |
| 1.7 | .35 | 23.80 |
| 1.8 | .35 | 23.80 |
| 2 | .40 | 23.80 |
| 2.2 | .45 | 23.80 |
| 2.3 | .40 | 23.80 |
| 2.5 | .45 | 23.80 |
| 2.6 | .45 | 23.80 |
| 3 | .50 | 23.80 |
| 3 | .60 | 23.80 |
| 3.5 | .60 | 23.80 |
| 4 | .50 | 23.80 |
| 4 | .70 | 23.80 |
| 4 | .75 | 23.80 |
| 4.5 | .50 | 23.80 |
| 4.5 | .75 | 23.80 |
| 5 | .50 | 23.80 |
| 5 | .80 | 23.80 |
| 5 | .90 | 23.80 |
| 6 | .50 | 23.80 |
| 6 | .75 | 23.80 |
| 6 | 1.00 | 23.80 |
| 7 | 1.00 | 23.80 |
| 8 | 1.00 | 23.80 |
| 8 | 1.25 | 23.80 |
| 1" Diameter | | |
| 1.6 | .35 | 29.90 |
| 1.8 | .35 | 29.90 |
| 2 | .40 | 29.90 |
| 2.2 | .45 | 29.90 |
| 2.3 | .40 | 29.90 |
| 2.5 | .45 | 29.90 |
| 2.6 | .45 | 29.90 |
| 3 | .50 | 29.90 |
| 3 | .60 | 29.90 |
| 3.5 | .60 | 29.90 |
| 4 | .50 | 29.90 |
| 4 | .70 | 29.90 |
| 4 | .75 | 29.90 |
| 4.5 | .50 | 29.90 |
| 4.5 | .75 | 29.90 |
| 5 | .50 | 29.90 |
| 5 | .80 | 29.90 |
| 5 | .90 | 29.90 |
| 5 | 1.00 | 29.90 |
| 5.5 | .90 | 29.90 |
| 6 | .50 | 29.90 |
| 6 | .75 | 29.90 |
| 6 | 1.00 | 29.90 |
| 6 | 1.25 | 29.90 |
| 6.3 | 1.00 | 29.90 |
| 7 | .75 | 29.90 |

| Size mm | Pitch mm | Price Each |
|------------------------|----------|------------|
| 1" Diameter | | |
| 7 | 1.00 | 29.90 |
| 8 | .75 | 29.90 |
| 8 | 1.00 | 29.90 |
| 8 | 1.25 | 29.90 |
| 9 | 1.00 | 29.90 |
| 9 | 1.25 | 29.90 |
| 10 | .75 | 29.90 |
| 10 | 1.00 | 29.90 |
| 10 | 1.25 | 29.90 |
| 10 | 1.50 | 29.90 |
| 11 | 1.00 | 29.90 |
| 11 | 1.50 | 29.90 |
| 12 | 1.00 | 29.90 |
| 12 | 1.25 | 29.90 |
| 12 | 1.75 | 29.90 |
| 1-1/2" Diameter | | |
| 6 | 1.00 | 45.00 |
| 7 | 1.00 | 45.00 |
| 8 | 1.25 | 45.00 |
| 9 | 1.00 | 45.00 |
| 9 | 1.25 | 45.00 |
| 10 | .75 | 45.00 |
| 10 | 1.00 | 45.00 |
| 10 | 1.25 | 45.00 |
| 10 | 1.50 | 45.00 |
| 11 | 1.00 | 45.00 |
| 11 | 1.50 | 45.00 |
| 12 | 1.00 | 45.00 |
| 12 | 1.25 | 45.00 |
| 12 | 1.50 | 45.00 |
| 12 | 1.75 | 45.00 |
| 14 | 1.00 | 45.00 |
| 14 | 1.25 | 45.00 |
| 14 | 1.50 | 45.00 |
| 14 | 2.00 | 45.00 |
| 15 | 1.50 | 45.00 |
| 16 | 1.00 | 45.00 |
| 16 | 1.50 | 45.00 |
| 16 | 2.00 | 45.00 |
| 17 | 1.50 | 45.00 |
| 18 | 1.50 | 45.00 |
| 18 | 2.00 | 45.00 |
| 18 | 2.50 | 45.00 |
| 20 | 1.50 | 45.00 |
| 20 | 2.00 | 45.00 |
| 20 | 2.50 | 45.00 |
| 2" Diameter | | |
| 15 | 1.50 | 76.90 |
| 16 | 1.00 | 76.90 |
| 16 | 1.50 | 76.90 |
| 16 | 2.00 | 76.90 |
| 17 | 1.50 | 76.90 |
| 18 | 1.50 | 76.90 |

| Size mm | Pitch mm | Price Each |
|------------------------|----------|------------|
| 2" Diameter | | |
| 18 | 2.00 | 76.90 |
| 18 | 2.50 | 76.90 |
| 20 | 1.50 | 76.90 |
| 20 | 2.00 | 76.90 |
| 20 | 2.50 | 76.90 |
| 22 | 1.00 | 76.90 |
| 22 | 1.50 | 76.90 |
| 22 | 2.00 | 76.90 |
| 22 | 2.50 | 76.90 |
| 24 | 1.50 | 76.90 |
| 24 | 2.00 | 76.90 |
| 24 | 3.00 | 76.90 |
| 26 | 1.50 | 76.90 |
| 27 | 2.00 | 76.90 |
| 27 | 3.00 | 76.90 |
| 28 | 1.50 | 76.90 |
| 30 | 1.50 | 76.90 |
| 30 | 2.00 | 76.90 |
| 30 | 3.50 | 76.90 |
| 2-1/2" Diameter | | |
| 22 | 1.00 | 106.00 |
| 22 | 1.50 | 106.00 |
| 22 | 2.00 | 106.00 |
| 22 | 2.50 | 106.00 |
| 24 | 1.50 | 106.00 |
| 24 | 2.00 | 106.00 |
| 24 | 3.00 | 106.00 |
| 26 | 1.50 | 106.00 |
| 27 | 2.00 | 106.00 |
| 27 | 3.00 | 106.00 |
| 28 | 1.50 | 106.00 |
| 28 | 2.00 | 106.00 |
| 30 | 1.50 | 106.00 |
| 30 | 2.00 | 106.00 |
| 30 | 3.00 | 106.00 |
| 30 | 3.50 | 106.00 |
| 33 | 2.00 | 106.00 |
| 33 | 3.50 | 106.00 |
| 36 | 2.00 | 106.00 |
| 36 | 3.00 | 106.00 |
| 36 | 4.00 | 106.00 |
| 3" Diameter | | |
| 30 | 2.00 | 195.00 |
| 30 | 3.00 | 195.00 |
| 30 | 3.50 | 195.00 |
| 36 | 3.00 | 195.00 |
| 36 | 4.00 | 195.00 |
| 39 | 3.00 | 195.00 |
| 39 | 4.00 | 195.00 |
| 42 | 4.50 | 195.00 |
| 45 | 4.50 | 195.00 |
| 48 | 5.00 | 195.00 |

LEFT HAND ROUND ADJUSTABLE METRIC SPLIT DIES

■ LIST NO. 753LH



| Size mm | Pitch mm | Price Each |
|--------------------|----------|------------|
| 1" Diameter | | |
| 2 | .40 | 29.90 |
| 2.5 | .45 | 29.90 |
| 3 | .50 | 29.90 |
| 3.5 | .60 | 29.90 |
| 4 | .70 | 29.90 |
| 5 | .80 | 29.90 |
| 6 | 1.00 | 29.90 |

| Size mm | Pitch mm | Price Each |
|--------------------|----------|------------|
| 1" Diameter | | |
| 7 | 1.00 | 29.90 |
| 8 | 1.25 | 29.90 |
| 10 | 1.25 | 29.90 |
| 10 | 1.50 | 29.90 |
| 10 | 1.75 | 29.90 |
| 12 | 1.25 | 29.90 |
| 12 | 1.75 | 29.90 |

| Size mm | Pitch mm | Price Each |
|------------------------|----------|------------|
| 1-1/2" Diameter | | |
| 12 | 1.25 | 45.00 |
| 12 | 1.75 | 45.00 |
| 14 | 1.50 | 45.00 |
| 14 | 2.00 | 45.00 |
| 16 | 1.50 | 45.00 |

| Size mm | Pitch mm | Price Each |
|------------------------|----------|------------|
| 1-1/2" Diameter | | |
| 16 | 2.00 | 45.00 |
| 18 | 1.50 | 45.00 |
| 18 | 2.50 | 45.00 |
| 20 | 1.50 | 45.00 |
| 20 | 2.50 | 45.00 |

LEFT HAND ROUND ADJUSTABLE SPLIT DIES

• LIST NO. 751LH

FRACTIONAL AND MACHINE SCREW SIZES



| Size | Threads Per Inch | Price Each |
|------------------------|------------------|------------|
| 13/16" Diameter | | |
| 0 | 80 | 28.50 |
| 2 | 56 | 28.50 |
| 2 | 64 | 28.50 |
| 4 | 40 | 28.50 |
| 5 | 40 | 28.50 |
| 6 | 32 | 28.50 |
| 8 | 32 | 28.50 |
| 10 | 24 | 28.50 |

| Size | Threads Per Inch | Price Each |
|--------------------|------------------|------------|
| 1" Diameter | | |
| 3 | 56 | 35.00 |
| 4 | 40 | 35.00 |
| 4 | 48 | 35.00 |
| 5 | 40 | 35.00 |
| 5 | 44 | 35.00 |
| 6 | 32 | 35.00 |
| 6 | 40 | 35.00 |
| 8 | 32 | 35.00 |
| 8 | 36 | 35.00 |
| 10 | 24 | 35.00 |
| 10 | 32 | 35.00 |
| 12 | 24 | 35.00 |
| 12 | 28 | 35.00 |
| 1/4 | 20 | 35.00 |
| 1/4 | 28 | 35.00 |
| 5/16 | 18 | 35.00 |
| 5/16 | 24 | 35.00 |
| 3/8 | 16 | 35.00 |
| 3/8 | 24 | 35.00 |
| 7/16 | 14 | 35.00 |
| 7/16 | 20 | 35.00 |
| 1/2 | 13 | 35.00 |
| 1/2 | 20 | 35.00 |
| 9/16 | 12 | 35.00 |

| Size | Threads Per Inch | Price Each |
|------------------------|------------------|------------|
| 1-1/2" Diameter | | |
| 1/4 | 20 | 54.00 |
| 1/4 | 28 | 54.00 |
| 5/16 | 18 | 54.00 |
| 5/16 | 24 | 54.00 |
| 3/8 | 16 | 54.00 |
| 3/8 | 24 | 54.00 |
| 7/16 | 14 | 54.00 |
| 7/16 | 20 | 54.00 |
| 1/2 | 13 | 54.00 |
| 1/2 | 20 | 54.00 |
| 9/16 | 12 | 54.00 |
| 9/16 | 18 | 54.00 |
| 5/8 | 11 | 54.00 |
| 5/8 | 18 | 54.00 |
| 11/16 | 11 | 54.00 |
| 11/16 | 16 | 54.00 |
| 3/4 | 10 | 54.00 |
| 3/4 | 16 | 54.00 |

| Size | Threads Per Inch | Price Each |
|--------------------|------------------|------------|
| 2" Diameter | | |
| 3/4 | 10 | 92.00 |
| 3/4 | 16 | 92.00 |
| 7/8 | 9 | 92.00 |
| 7/8 | 14 | 92.00 |
| 1 | 8 | 92.00 |
| 1 | 12 | 92.00 |
| 1 | 14 | 92.00 |

| Size | Threads Per Inch | Price Each |
|------------------------|------------------|------------|
| 2-1/2" Diameter | | |
| 1-1/8 | 7 | 127.50 |
| 1-1/8 | 12 | 127.50 |
| 1-1/4 | 7 | 127.50 |
| 1-1/4 | 12 | 127.50 |
| 1-3/8 | 6 | 127.50 |
| 1-3/8 | 12 | 127.50 |
| 1-1/2 | 6 | 127.50 |
| 1-1/2 | 12 | 127.50 |

| Size | Threads Per Inch | Price Each |
|--------------------|------------------|------------|
| 3" Diameter | | |
| 1-1/2 | 6 | 234.00 |
| 1-1/2 | 12 | 234.00 |
| 1-3/4 | 5 | 234.00 |
| 2 | 4-1/2 | 234.00 |

CARBON STEEL

SOLID SQUARE PIPE DIES

► LIST NO. 768



| Size | Threads Per Inch | Price Each | | | |
|-------|------------------|---------------------|-------------------------|---------------------|-------------------|
| | | 2" Square 1/2" Deep | 2-1/2" Square 3/4" Deep | 3" Square 3/4" Deep | 4" Square 1" Deep |
| 1/8 | 27 | 43.66 | 52.90 | — | — |
| 1/4 | 18 | 43.66 | 52.90 | — | — |
| 3/8 | 18 | 43.66 | 52.90 | — | — |
| 1/2 | 14 | 43.66 | 52.90 | 89.70 | — |
| 3/4 | 14 | — | 52.90 | 89.70 | — |
| 1 | 11-1/2 | — | 52.90 | 89.70 | 98.50 |
| 1-1/4 | 11-1/2 | — | — | 89.70 | 98.50 |
| 1-1/2 | 11-1/2 | — | — | — | 98.50 |
| 2 | 11-1/2 | — | — | — | 98.50 |

CARBON STEEL

ADJUSTABLE 2-PIECE DIE

► LIST NO. 764



Easy to sharpen and allows for a wide range of adjustment. Ideal for threading or thread repair work.

| Size | Threads Per Inch | For use with collet No. | Price per Two Piece Die |
|-------|------------------|-------------------------|-------------------------|
| 1/4 | 20 | 1 or 5 | 24.90 |
| 1/4 | 28 | 1 or 5 | 24.90 |
| 5/16 | 18 | 1 or 5 | 24.90 |
| 5/16 | 24 | 1 or 5 | 24.90 |
| 3/8 | 16 | 1 or 5 | 29.50 |
| 3/8 | 24 | 1 or 5 | 29.50 |
| 7/16 | 14 | 1 or 5 | 29.75 |
| 7/16 | 20 | 1 or 5 | 29.75 |
| 1/2 | 13 | 1 or 5 | 35.85 |
| 1/2 | 20 | 1 or 5 | 35.85 |
| 9/16 | 12 | 5 | 36.50 |
| 9/16 | 18 | 5 | 36.50 |
| 5/8 | 11 | 5 or 20 | 41.65 |
| 5/8 | 18 | 5 or 20 | 41.65 |
| 11/16 | 11 | 5 or 20 | 46.50 |
| 3/4 | 10 | 5 or 20 | 61.00 |
| 3/4 | 16 | 5 or 20 | 61.00 |
| 7/8 | 9 | 5, 20 or 25 | 62.50 |
| 7/8 | 14 | 5, 20 or 25 | 62.50 |
| 1 | 8 | 5, 20 or 25 | 65.85 |
| 1 | 12 | 5, 20 or 25 | 65.85 |
| 1 | 14 | 5, 20 or 25 | 65.85 |

Please specify Collet No. when ordering.

ROUND ADJUSTABLE SPECIAL THREAD SPLIT DIES



■ LIST NO. 759 — RIGHT HAND

| Size | Threads Per Inch | Price Each |
|------------------------|--|------------|
| 13/16" Diameter | | |
| 4 | 36 | 28.50 |
| 5 | 48 | 28.50 |
| 6 | 36, 48 | 28.50 |
| 8 | 40 | 28.50 |
| 10 | 36, 40, 48, 56, 64 | 28.50 |
| 12 | 32 | 28.50 |
| 7/32 | 32 | 28.50 |
| 9/32 | 32 | 28.50 |
| 1" Diameter | | |
| 4 | 36, 56, 60, 64 | 29.90 |
| 5 | 48, 56, 64 | 29.90 |
| 6 | 30, 36, 48, 56 | 29.90 |
| 8 | 24, 30, 40, 48, 56, 64 | 29.90 |
| 10 | 26, 27, 28, 30, 36, 40, 48, 56, 64, 80 | 29.90 |
| 12 | 26, 27, 30, 32, 36, 40, 48, 50 | 29.90 |
| 5/32 | 40 | 29.90 |
| 7/32 | 24, 32, 40 | 29.90 |
| 14 | 27, 28, 30, 32 | 29.90 |
| 1/4 | 14, 16, 18, 22, 24, 26, 27, 30, 32, 36, 40, 48, 56, 64, 80 | 29.90 |
| 5/16 | 16, 20, 22, 26, 27, 28, 30, 32, 36, 40, 48, 56, 64, 80 | 29.90 |
| 3/8 | 14, 18, 20, 22, 26, 27, 28, 30, 32, 36, 40, 48, 56, 64, 72 | 29.90 |
| 13/32 | 32 | 29.90 |
| 7/16 | 12, 16, 18, 24, 27, 28, 30, 32, 36, 40, 48 | 29.90 |
| 1/2 | 12, 14, 16, 18, 22, 24, 27, 28, 30, 32, 36, 40, 48, 56 | 29.90 |
| 1-1/2" Diameter | | |
| 1/4 | 22, 24, 27, 30, 32, 36, 40, 48 | 45.00 |
| 5/16 | 16, 20, 22, 27, 28, 30, 32, 36, 40, 48 | 45.00 |
| 3/8 | 14, 18, 20, 22, 26, 27, 28, 30, 32, 36, 40, 48 | 45.00 |
| 7/16 | 12, 16, 18, 22, 24, 27, 28, 30, 32, 36, 40, 48 | 45.00 |
| 15/32 | 32 | 45.00 |
| 1/2 | 12, 14, 16, 18, 28, 22, 24, 27, 28, 30, 32, 36, 40, 48 | 45.00 |
| 9/16 | 14, 16, 20, 22, 24, 27, 28, 30, 32, 36, 40, 48 | 45.00 |
| 5/8 | 10, 12, 14, 16, 20, 22, 24, 26, 27, 28, 30, 32, 36, 40, 48 | 45.00 |
| 11/16 | 12, 14, 18, 20, 24, 27, 32, 36, 40 | 45.00 |
| 3/4 | 11-1/2, 12, 14, 18, 20, 24, 27, 28, 30, 32, 36, 40, 48 | 45.00 |
| 13/16 | 10, 12, 16, 20, 24, 28, 32 | 45.00 |
| 2" Diameter | | |
| 7/16 | 18, 24 | 76.90 |
| 1/2 | 12, 16, 18, 24, 27, 28, 30, 32 | 76.90 |
| 9/16 | 14, 20, 24, 27, 28, 30, 32, 36 | 76.90 |
| 5/8 | 10, 12, 14, 16, 20, 24, 27, 28, 30, 32, 40 | 76.90 |
| 11/16 | 12, 14, 18, 20, 24, 27, 28, 32, 36, 40 | 76.90 |

Inquire for sizes not shown.

| Size | Threads Per Inch | Price Each |
|------------------------|--|------------|
| 2" Diameter | | |
| 3/4 | 12, 14, 18, 20, 24, 27, 28, 32, 36, 40 | 76.90 |
| 13/16 | 10, 12, 14, 16, 18, 20, 24, 27, 28, 30, 32, 36, 40 | 76.90 |
| 7/8 | 10, 12, 16, 18, 20, 24, 27, 28, 30, 32, 36, 40, 48 | 76.90 |
| 15/16 | 10, 12, 14, 16, 18, 20, 24, 27, 28, 30, 32 | 76.90 |
| 1 | 10, 16, 18, 20, 24, 26, 27, 28, 30, 32, 36, 40, 48, 56 | 76.90 |
| 1-1/16 | 12, 14, 16, 18 | 76.90 |
| 2-1/2" Diameter | | |
| 1 | 10, 16, 18, 20, 24, 26, 27, 28, 32 | 106.00 |
| 1-1/16 | 7, 8, 10, 12, 14, 16, 18, 20, 24, 28 | 106.00 |
| 1-1/8 | 8, 10, 14, 16, 17, 20, 24, 27, 28, 30, 32 | 106.00 |
| 1-3/16 | 7, 8, 10, 12, 14, 16, 18, 20, 24, 27, 28, 32 | 106.00 |
| 1-1/4 | 6, 8, 10, 14, 16, 18, 20, 24, 26, 27, 28, 30, 32, 36, 40 | 106.00 |
| 1-5/16 | 8, 12, 14, 16, 18, 20, 24, 27, 32 | 106.00 |
| 1-3/8 | 7, 8, 10, 14, 16, 18, 20, 24, 27, 32 | 106.00 |
| 1-7/16 | 6, 8, 12, 16, 18, 20 | 106.00 |
| 1-1/2 | 7, 8, 10, 14, 16, 18, 20, 24, 27, 30, 32 | 106.00 |
| 3" Diameter | | |
| 1 | 10, 16, 18, 20, 24 | 195.00 |
| 1-1/16 | 8, 10, 12, 14, 16, 18, 20, 24 | 195.00 |
| 1-1/8 | 8, 10, 14, 16, 18, 20, 24 | 195.00 |
| 1-3/16 | 8, 12, 16 | 195.00 |
| 1-1/4 | 6, 8, 10, 14, 16, 18, 20, 24 | 195.00 |
| 1-5/16 | 8, 10, 12, 14, 16, 18, 20 | 195.00 |
| 1-3/8 | 8, 10, 14, 16, 18, 20, 24 | 195.00 |
| 1-7/16 | 6, 8, 12, 16, 18 | 195.00 |
| 1-1/2 | 8, 10, 14, 16, 18, 20, 24 | 195.00 |
| 1-9/16 | 6, 8, 12, 16, 18, 20, 32 | 195.00 |
| 1-5/8 | 5, 5-1/2, 6, 8, 10, 12, 14, 16, 18, 20 | 195.00 |
| 1-11/16 | 6, 8, 12, 16, 18 | 195.00 |
| 1-3/4 | 5-1/2, 6, 8, 10, 14, 16, 18, 20, 24 | 195.00 |
| 1-13/16 | 8, 10, 12, 14, 16, 18, 20 | 195.00 |
| 1-7/8 | 5, 5-1/2, 6, 8, 10, 12, 14, 16, 18, 20 | 195.00 |
| 1-15/16 | 10, 12, 14, 16, 18, 20 | 195.00 |
| 2 | 4, 6, 8, 10, 14, 16, 18, 20, 24 | 195.00 |
| 4" Diameter | | |
| 2-1/8 | 18 | 240.00 |
| 2-1/4 | 4-1/2, 8, 12, 16 | 240.00 |
| 2-3/8 | 16 | 240.00 |
| 2-1/2 | 4, 8, 12 | 240.00 |
| 2-3/4 | 12, 16 | 240.00 |
| 3 | 8, 12 | 240.00 |

CARBON STEEL

HEXAGON SPECIAL RETHREADING DIES



■ LIST NO. 769 — RIGHT HAND

| Size | Threads Per Inch Available | Price Each |
|--------|----------------------------|------------|
| 1/4 | 24, 27, 32, 36, 40, 48 | 14.28 |
| 5/16 | 16, 20, 27, 32, 40 | 15.75 |
| 3/8 | 18, 20, 27, 32, 40 | 16.59 |
| 7/16 | 24, 28, 32, 40 | 18.69 |
| 1/2 | 16, 18, 24, 28, 32, 40 | 19.95 |
| 9/16 | 16, 20, 24, 32 | 21.21 |
| 5/8 | 16, 20, 24, 32 | 24.57 |
| 11/16 | 18, 20, 24 | 27.51 |
| 3/4 | 18, 20, 24, 32 | 32.55 |
| 13/16 | 16, 20, 24, 32 | 36.54 |
| 7/8 | 16, 18, 20, 24, 32, 40 | 36.54 |
| 15/16 | 14, 16, 18, 20 | 41.79 |
| 1 | 10, 16, 18, 20, 24, 32 | 41.79 |
| 1-1/16 | 8, 12, 16, 18 | 48.93 |
| 1-1/8 | 8, 16, 18, 20 | 48.93 |
| 1-3/16 | 8, 10, 12, 18 | 58.80 |
| 1-1/4 | 5, 8, 10, 16, 18, 20 | 58.80 |
| 1-5/16 | 8, 12, 18 | 62.79 |
| 1-3/8 | 7, 8, 10, 16, 18, 20 | 62.79 |
| 1-7/16 | 6, 8, 12, 16, 18 | 68.04 |
| 1-1/2 | 8, 14, 16, 18, 20 | 68.04 |
| 1-9/16 | 12, 16, 18, 20 | 103.85 |

| Size | Threads Per Inch Available | Price Each |
|---------|---------------------------------------|------------|
| 1-5/8 | 4, 5, 5-1/2, 6, 8, 10, 12, 14, 16, 18 | 103.85 |
| 1-11/16 | 18 | 125.48 |
| 1-3/4 | 5-1/2, 6, 8, 10, 14, 16, 18, 20 | 125.48 |
| 1-13/16 | 12, 18 | 183.96 |
| 1-7/8 | 5, 8, 12, 16, 18 | 183.96 |
| 2 | 4, 8, 10, 12, 14, 16, 18, 20, 24 | 183.96 |
| 2-1/8 | 6, 8, 12, 14, 16, 18 | 252.00 |
| 2-1/4 | 4, 6, 8, 10, 12, 14, 16, 18 | 252.00 |
| 2-3/8 | 4, 8, 10, 12, 14, 18 | 294.00 |
| 2-1/2 | 4-1/2, 5, 6, 8, 10, 12, 14, 16, 18 | 294.00 |
| 2-5/8 | 6, 8, 12, 14, 16 | 399.00 |
| 2-3/4 | 6, 8, 10, 12, 14, 18 | 399.00 |
| 2-7/8 | 6, 8, 12 | 439.16 |
| 3 | 8, 12 | 439.16 |
| 3-1/8 | 4, 8, 12 | 552.04 |
| 3-1/4 | 5, 8, 12 | 552.04 |
| 3-3/8 | 4, 8, 12 | 596.40 |
| 3-1/2 | 8, 12 | 596.40 |
| 3-5/8 | 4, 8, 12 | 640.50 |
| 3-3/4 | 8, 12 | 640.50 |
| 3-7/8 | 4, 8, 12 | 708.75 |
| 4 | 8, 12 | 708.75 |

HEXAGON RETHREADING DIES

- LIST NO. 765 — RIGHT HAND
- LIST NO. 765U — RIGHT HAND, MADE IN U.S.A.
- LIST NO. 765LH — LEFT HAND



For rethreading, damaged, jammed or rusty threads. No special holder is required for these dies. Any wrench large enough will suffice.

FRACTIONAL AND MACHINE SCREW SIZES

| Size | Threads Per Inch | Price Each | | |
|------|------------------|-------------------|--------------------|---------------------|
| | | R.H. List No. 765 | R.H. List No. 765U | L.H. List No. 765LH |
| 2 | 56 | 13.60 | — | — |
| 4 | 36 | 13.60 | — | — |
| 4 | 40 | 13.60 | — | — |
| 4 | 48 | 13.60 | — | — |
| 5 | 40 | 13.60 | — | — |
| 5 | 44 | 13.60 | — | — |
| 6 | 32 | 13.60 | 19.70 | — |
| 6 | 40 | 13.60 | 19.70 | — |
| 8 | 32 | 13.60 | 19.70 | — |
| 8 | 36 | 13.60 | 19.70 | — |
| 10 | 24 | 13.60 | 19.70 | — |
| 10 | 32 | 13.60 | 19.70 | — |
| 12 | 24 | 13.60 | 19.70 | — |
| 12 | 28 | 13.60 | 19.70 | — |
| 1/4 | 20 | 13.60 | 19.70 | 14.95 |
| 1/4 | 28 | 13.60 | 19.70 | 14.95 |
| 5/16 | 18 | 15.00 | 21.75 | 16.50 |
| 5/16 | 24 | 15.00 | 21.75 | 16.50 |
| 3/8 | 16 | 15.80 | 22.90 | 18.50 |

| Size | Threads Per Inch | Price Each | | |
|-------|------------------|-------------------|--------------------|---------------------|
| | | R.H. List No. 765 | R.H. List No. 765U | L.H. List No. 765LH |
| 3/8 | 24 | 15.80 | 22.90 | 18.50 |
| 7/16 | 14 | 17.80 | 25.80 | 19.90 |
| 7/16 | 20 | 17.80 | 25.80 | 19.90 |
| 1/2 | 13 | 19.00 | 27.55 | 23.50 |
| 1/2 | 20 | 19.00 | 27.55 | 23.50 |
| 9/16 | 12 | 20.20 | 29.30 | 26.50 |
| 9/16 | 18 | 20.20 | 29.30 | 26.50 |
| 5/8 | 11 | 23.40 | 33.95 | 29.00 |
| 5/8 | 18 | 23.40 | 33.95 | 29.00 |
| 11/16 | 11 | 26.20 | 38.00 | 34.33 |
| 11/16 | 16 | 26.20 | 38.00 | 34.33 |
| 3/4 | 10 | 31.00 | 44.95 | 39.27 |
| 3/4 | 16 | 31.00 | 44.95 | 39.27 |
| 7/8 | 9 | 34.80 | 50.50 | 44.13 |
| 7/8 | 14 | 34.80 | 50.50 | 44.13 |
| 1 | 8 | 39.80 | 57.75 | 49.93 |
| 1 | 12 | 39.80 | 57.75 | 49.93 |
| 1 | 14 | 39.80 | 57.75 | 49.93 |
| 1-1/8 | 7 | 46.60 | — | 65.00 |

| Size | Threads Per Inch | Price Each | |
|-------|------------------|-------------------|---------------------|
| | | R.H. List No. 765 | L.H. List No. 765LH |
| 1-1/8 | 12 | 46.60 | 65.00 |
| 1-1/4 | 7 | 56.00 | 79.20 |
| 1-1/4 | 12 | 56.00 | 79.20 |
| 1-3/8 | 6 | 59.80 | 89.00 |
| 1-3/8 | 12 | 59.80 | 89.00 |
| 1-1/2 | 6 | 64.80 | 109.50 |
| 1-1/2 | 12 | 64.80 | 109.50 |
| 1-5/8 | 5-1/2 | 98.80 | — |
| 1-3/4 | 5 | 119.50 | 186.70 |
| 2 | 4-1/2 | 149.35 | 252.70 |
| 2-1/4 | 4-1/2 | 240.00 | — |
| 2-1/2 | 4 | 280.00 | — |
| 2-3/4 | 4 | 380.00 | — |
| 3 | 4 | 418.25 | — |
| 3-1/4 | 4 | 525.75 | — |
| 3-1/2 | 4 | 568.00 | — |
| 3-3/4 | 4 | 610.00 | — |
| 4 | 4 | 675.00 | — |

- LIST NO. 767 — RIGHT HAND

METRIC SIZES

| Size mm | Pitch mm | Price Each | Size mm | Pitch mm | Price Each | Size mm | Pitch mm | Price Each | Size mm | Pitch mm | Price Each | Size mm | Pitch mm | Price Each |
|---------|----------|------------|---------|----------|------------|---------|----------|------------|---------|----------|------------|---------|----------|------------|
| 3 | .50 | 12.74 | 9 | 1.25 | 15.76 | 15 | 2.00 | 23.28 | 22 | 2.50 | 44.72 | 33 | 2.00 | 66.21 |
| 3 | .60 | 12.74 | 10 | .50 | 17.74 | 16 | .50 | 23.28 | 22 | 3.00 | 44.72 | 33 | 3.50 | 66.21 |
| 3.5 | .50 | 12.74 | 10 | .75 | 17.74 | 16 | .75 | 23.28 | 23 | 2.00 | 44.72 | 34 | 1.50 | 72.92 |
| 3.5 | .60 | 12.74 | 10 | 1.00 | 17.74 | 16 | 1.00 | 23.28 | 23 | 2.50 | 44.72 | 35 | 1.50 | 72.92 |
| 4 | .50 | 12.74 | 10 | 1.25 | 17.74 | 16 | 1.25 | 23.28 | 24 | 1.00 | 44.72 | 36 | 1.50 | 72.92 |
| 4 | .70 | 12.74 | 10 | 1.50 | 17.74 | 16 | 1.50 | 23.28 | 24 | 1.50 | 44.72 | 36 | 2.00 | 72.92 |
| 4 | .75 | 12.74 | 11 | .50 | 17.74 | 16 | 2.00 | 23.28 | 24 | 2.00 | 44.72 | 36 | 3.00 | 72.92 |
| 4.5 | .50 | 12.74 | 11 | .75 | 17.74 | 17 | 1.50 | 34.82 | 24 | 2.50 | 44.72 | 36 | 4.00 | 72.92 |
| 4.5 | .75 | 12.74 | 11 | 1.00 | 17.74 | 17 | 2.00 | 34.82 | 24 | 3.00 | 44.72 | 38 | 1.50 | 79.80 |
| 5 | .50 | 12.74 | 11 | 1.25 | 17.74 | 18 | .50 | 34.82 | 25 | 1.50 | 49.74 | 39 | 1.50 | 79.80 |
| 5 | .75 | 12.74 | 11 | 1.50 | 17.74 | 18 | 1.00 | 34.82 | 25 | 2.00 | 49.74 | 39 | 3.00 | 79.80 |
| 5 | .80 | 12.74 | 12 | .50 | 19.06 | 18 | 1.50 | 34.82 | 26 | 1.50 | 49.74 | 39 | 4.00 | 79.80 |
| 5 | .90 | 13.74 | 12 | .75 | 19.06 | 18 | 2.00 | 34.82 | 26 | 2.00 | 49.74 | 40 | 1.50 | 99.16 |
| 6 | .50 | 13.42 | 12 | 1.00 | 19.06 | 18 | 2.50 | 34.82 | 27 | 1.00 | 49.74 | 42 | 1.50 | 99.16 |
| 6 | .75 | 13.42 | 12 | 1.25 | 19.06 | 19 | 1.50 | 34.82 | 27 | 1.50 | 49.74 | 42 | 3.00 | 99.16 |
| 6 | 1.00 | 13.42 | 12 | 1.50 | 19.06 | 19 | 2.00 | 34.82 | 27 | 2.00 | 49.74 | 42 | 4.50 | 99.16 |
| 6.3 | 1.00 | 13.42 | 12 | 1.75 | 19.06 | 20 | 1.00 | 34.82 | 27 | 3.00 | 49.74 | 45 | 1.50 | 120.00 |
| 7 | .50 | 15.10 | 13 | 1.50 | 20.29 | 20 | 1.25 | 34.82 | 28 | 1.50 | 60.18 | 45 | 3.00 | 120.00 |
| 7 | .75 | 15.10 | 13 | 2.00 | 20.29 | 20 | 1.50 | 34.82 | 28 | 2.00 | 60.18 | 45 | 4.50 | 120.00 |
| 7 | 1.00 | 15.10 | 14 | .50 | 20.29 | 20 | 2.00 | 34.82 | 30 | 1.00 | 60.18 | 48 | 1.50 | 140.00 |
| 8 | .50 | 15.10 | 14 | .75 | 20.29 | 20 | 2.50 | 34.82 | 30 | 1.50 | 60.18 | 48 | 3.00 | 140.00 |
| 8 | .75 | 15.10 | 14 | 1.00 | 20.29 | 21 | 1.50 | 44.72 | 30 | 2.00 | 60.18 | 48 | 5.00 | 140.00 |
| 8 | 1.00 | 15.10 | 14 | 1.25 | 20.29 | 21 | 2.50 | 44.72 | 30 | 3.00 | 60.18 | 50 | 1.50 | 150.00 |
| 8 | 1.25 | 15.10 | 14 | 1.50 | 20.29 | 22 | 1.00 | 44.72 | 30 | 3.50 | 60.18 | 52 | 1.50 | 189.85 |
| 9 | .50 | 15.76 | 14 | 2.00 | 20.29 | 22 | 1.50 | 44.72 | 32 | 1.50 | 66.21 | 52 | 3.00 | 189.85 |
| 9 | .75 | 15.76 | 15 | 1.50 | 23.28 | 22 | 2.00 | 44.72 | 33 | 1.50 | 66.21 | 52 | 5.00 | 189.85 |
| 9 | 1.00 | 15.76 | | | | | | | | | | | | |

HIGH SPEED HEXAGON RETHREADING DIES

- LIST NO. 765HS

Threading Dies are designed for tough cutting applications of all types of external threads, such as threading rods, bolts and studs.



| Size | Threads Per Inch | Price Each | Size | Threads Per Inch | Price Each | Size | Threads Per Inch | Price Each | Size | Threads Per Inch | Price Each | Size | Threads Per Inch | Price Each |
|------|------------------|------------|------|------------------|------------|------|------------------|------------|-------|------------------|------------|-------|------------------|------------|
| 1/4 | 20 | 19.00 | 7/16 | 14 | 26.70 | 5/8 | 11 | 36.75 | 1 | 8 | 62.50 | 1-1/4 | 12 | 115.00 |
| 1/4 | 28 | 19.00 | 7/16 | 20 | 26.70 | 5/8 | 18 | 36.75 | 1 | 12 | 62.50 | 1-3/8 | 6 | 135.00 |
| 5/16 | 18 | 22.00 | 1/2 | 13 | 28.50 | 3/4 | 10 | 46.50 | 1 | 14 | 62.50 | 1-3/8 | 12 | 135.00 |
| 5/16 | 24 | 22.00 | 1/2 | 20 | 28.50 | 3/4 | 16 | 46.50 | 1-1/8 | 7 | 95.00 | 1-1/2 | 6 | 175.00 |
| 3/8 | 16 | 23.70 | 9/16 | 12 | 32.30 | 7/8 | 9 | 52.90 | 1-1/8 | 12 | 95.00 | 1-1/2 | 12 | 175.00 |
| 3/8 | 24 | 23.70 | 9/16 | 18 | 32.30 | 7/8 | 14 | 52.90 | 1-1/4 | 7 | 115.00 | | | |

TAP AND DIE SETS

◆ **SET NO. 777P — \$159.00**

| CARBON PIPE TAP & HEX DIE SET | |
|---|---|
| Description | Tap and Dies Included Sizes |
| 12 Piece Carbon Pipe Tap & Hexagon Pipe Die Set | 1/8 NPT 1/4 3/8 1/2 3/4 1" |



◆ **SET NO. 777X — \$299.00**

| CARBON FRACTIONAL & METRIC TAP & HEX DIE SET | | | |
|---|-----------------------------|---------|--|
| Description | Tap and Dies Included Sizes | | Tools Included |
| 76 Piece Carbon Fractional and Metric Tap & Hex Die Set | 4-40 | 3x0.50 | <ul style="list-style-type: none"> •1 Die stock •1 Plain Die stock •1 T-Tap Wrench •1 Hex Nut with 3/8 Sq. Drive •1 Hex Nut Screw Pitch Gauge (Metric) •1 Screw Pitch Gauge •1 Screwdriver •2 Adj. Handle Tap Wrenches |
| | 6-32 | 4x0.70 | |
| | 8-32 | 4x0.75 | |
| | 10-24 | 5x0.80 | |
| | 10-32 | 5x0.90 | |
| | 12-24 | 6x1.00 | |
| | 1/4-20 | 7x1.00 | |
| | 1/4-28 | 8x1.00 | |
| | 5/16-18 | 8x1.25 | |
| | 5/16-24 | 9x1.00 | |
| | 3/8-16 | 9x1.25 | |
| | 3/8-24 | 10x1.25 | |
| | 7/16-14 | 10x1.50 | |
| | 7/16-20 | 11x1.50 | |
| | 1/2-13 | 12x1.50 | |
| | 1/2-20 | 12x1.75 | |
| 1/8-27 NPT | 1/8-28 BSP | | |

◆ **SET NO. 777CD — \$129.00**

| CARBON TAP & ROUND ADJUSTABLE DIE SET | | | |
|--|-----------------------------|---------|--|
| Description | Tap and Dies Included Sizes | | Tools Included |
| 45 Piece Fractional Carbon Tap & Die Set | 1/4-20 | 9/16-12 | <ul style="list-style-type: none"> •2 Tap Wrenches (1/4"-1/2" "T" Type) (1/4"-1" Large Screw Type) •2" Diameter Die Stock •1-1/2" Adapter •1 Screwdriver |
| | 1/4-28 | 9/16-18 | |
| | 5/16-18 | 5/8-11 | |
| | 5/16-24 | 5/8-18 | |
| | 3/8-16 | 3/4-10 | |
| | 3/8-24 | 3/4-16 | |
| | 7/16-14 | 7/8-9 | |
| | 7/16-20 | 7/8-14 | |
| | 1/2-13 | 1-8 | |
| | 1/2-20 | 1-14 | |

◆ **SET NO. 777HC — \$179.00**

| CARBON TAP & HEX DIE SET | | | |
|--|-----------------------------|---------|---|
| Description | Tap and Dies Included Sizes | | Tools Included |
| 41 Piece Carbon Tap & Hex Die Set #6 to 3/4 NC | 6-32 | 3/8-16 | <ul style="list-style-type: none"> •2 Tap Wrenches •2 Die Stocks •1 T-handle |
| | 8-32 | 7/16-14 | |
| | 10-24 | 1/2-13 | |
| | 12-24 | 9/16-12 | |
| | 1/4-20 | 5/8-11 | |
| | 5/16-18 | 3/4-10 | |

◆ **SET NO. 778T — \$159.00**

| HIGH SPEED METRIC TAP & ROUND ADJUSTABLE DIE SET | | | |
|---|-----------------------------|---------|---|
| Description | Tap and Dies Included Sizes | | Tools Included |
| 23 Piece High Speed Metric Tap & Round Adj. Die Set | 5x0.80 | 8x1.25 | <ul style="list-style-type: none"> •1 Tap Wrench •2 Piece Die Stocks (1"OD, 1-1/2"OD) |
| | 5x0.90 | 10x1.25 | |
| | 6x0.75 | 10x1.50 | |
| | 6x1.00 | 12x1.50 | |
| | 8x1.00 | 12x1.75 | |

◆ **SET NO. 777S — \$299.00**

| HIGH SPEED TAP & ROUND ADJUSTABLE DIE SET | | | |
|---|-----------------------------|---------|--|
| Description | Tap and Dies Included Sizes | | Tools Included |
| 40 Piece Inch Tap & Round Adj. Die Set | 4-40 | 5/16-18 | <ul style="list-style-type: none"> •3 Tap Wrenches •1 Die Stock (1"OD) •1 Screw Pitch Gauge •1 Screwdriver |
| | 6-32 | 5/16-24 | |
| | 8-32 | 3/8-16 | |
| | 10-24 | 3/8-24 | |
| | 10-32 | 7/16-14 | |
| | 12-24 | 7/16-20 | |
| | 1/4-20 | 1/2-13 | |
| | 1/4-28 | 1/2-20 | |
| | | 1/8 NPT | |

◆ **SET NO. 778S — \$299.00**

| HIGH SPEED METRIC TAP & ROUND ADJUSTABLE DIE SET | | | |
|--|-----------------------------|---------|---|
| Description | Tap and Dies Included Sizes | | Tools Included |
| 36 Piece Metric Tap & Round Adj. Die Set | 3x0.50 | 8x1.25 | <ul style="list-style-type: none"> •3 Tap Wrenches •1 Piece Die Stock(1"OD) •1 Screw Pitch Gauge •1 Screwdriver |
| | 3x0.60 | 10x1.25 | |
| | 4x0.70 | 10x1.50 | |
| | 4x0.75 | 11x1.50 | |
| | 5x0.80 | 12x1.50 | |
| | 6x1.00 | 12x1.75 | |
| | 7x1.00 | 1/8 NPT | |
| | 8x1.00 | | |

◆ **SET NO. 777CB — \$99.00**

| CARBON TAP & ROUND ADJUSTABLE DIE SET | | | |
|--|-----------------------------|---------|--|
| Description | Tap and Dies Included Sizes | | Tools Included |
| 40 Piece Inch Tap & Round Adj. Die Set | 4-40 | 5/16-18 | <ul style="list-style-type: none"> •3 Tap Wrenches •1 Die Stock (1"OD) •1 Screw Pitch Gauge •1 Screwdriver |
| | 6-32 | 5/16-24 | |
| | 8-32 | 3/8-16 | |
| | 10-24 | 3/8-24 | |
| | 10-32 | 7/16-14 | |
| | 12-24 | 7/16-20 | |
| | 1/4-20 | 1/2-13 | |
| | 1/4-28 | 1/2-20 | |
| | | 1/8 NPT | |

◆ **SET NO. 778CB — \$129.00**

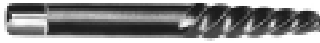
| CARBON METRIC TAP & ROUND ADJUSTABLE DIE SET | | | |
|--|-----------------------------|---------|---|
| Description | Tap and Dies Included Sizes | | Tools Included |
| 36 Piece Metric Tap & Round Adj. Die Set | 3x0.50 | 8x1.25 | <ul style="list-style-type: none"> •3 Tap Wrenches •1 Piece Die Stock(1"OD) •1 Screw Pitch Gauge •1 Screwdriver |
| | 3x0.60 | 10x1.25 | |
| | 4x0.70 | 10x1.50 | |
| | 4x0.75 | 11x1.50 | |
| | 5x0.80 | 12x1.50 | |
| | 6x1.00 | 12x1.75 | |
| | 7x1.00 | 1/8 NPT | |
| | 8x1.00 | | |

SCREW EXTRACTORS

SETS

Made in U.S.A.

● EXL SERIES — SPIRAL FLUTE MADE IN U.S.A.



● EXT SERIES — STRAIGHT FLUTE MADE IN U.S.A.



For removing broken screws, studs, pipe fittings, etc., without damaging the threads.

| Size | For Screws & Bolts, Sizes | Pipe Size | USA Spiral Tool No. | Price Each | USA Straight Tool No. | Price Each |
|------|---------------------------|-----------|---------------------|------------|-----------------------|------------|
| 1 | 3/16 - 1/4 | — | EXL1 | 2.20 | EXT1 | 2.20 |
| 2 | 1/4 - 5/16 | — | EXL2 | 2.40 | EXT2 | 2.40 |
| 3 | 5/16 - 7/16 | — | EXL3 | 2.90 | EXT3 | 2.90 |
| 4 | 7/16 - 9/16 | 1/8 | EXL4 | 2.99 | EXT4 | 2.99 |
| 5 | 9/16 - 3/4 | 1/4 | EXL5 | 3.75 | EXT5 | 3.75 |
| 6 | 3/4 - 1 | 3/8 | EXL6 | 8.60 | — | — |
| 7 | 1 - 1-3/8 | 1/2 | EXL7 | 13.85 | — | — |
| 8 | 1-3/8 - 1-3/4 | 3/4 | EXL8 | 18.90 | — | — |
| 9 | 1-3/4 - 2-1/8 | 1 | EXL9 | 32.70 | — | — |
| 10 | 2-1/8 - 2-1/2 | 1-1/4 | EXL10 | 45.00 | — | — |
| 11 | 2-1/2 - 3 | 1-1/2 | EXL11 | 68.50 | — | — |
| 12 | 3 - 3-1/2 | 2 | EXL12 | 109.00 | — | — |



SET NO. EXL15

5 Piece Set
Contains 1 piece of each:
Spiral Flute, #1 thru #5
Supplied in a vinyl pouch.

SET PRICE — \$13.95

SET NO. EXL69

4 Piece Set
Contains 1 piece of each:
Spiral Flute, #6 thru #9

SET PRICE — \$73.95

SET NO. EXT15

5 Piece Set
Contains 1 piece of each:
Straight Flute, #1 thru #5
Supplied in a vinyl pouch.

SET PRICE — \$13.95

SET NO. EXL19

9 Piece Set
Contains 1 piece of each:
Spiral Flute, #1 thru #9

SET PRICE — \$87.95

● EXE SERIES — ECONOMY IMPORTED

| Size | For Screws & Bolts, Sizes | Economy Tool No. | Price Each |
|------|---------------------------|------------------|------------|
| 1 | 3/16 - 1/4 | EXE1 | 1.25 |
| 2 | 1/4 - 5/16 | EXE2 | 1.40 |
| 3 | 5/16 - 7/16 | EXE3 | 1.50 |
| 4 | 7/16 - 9/16 | EXE4 | 1.70 |
| 5 | 9/16 - 3/4 | EXE5 | 2.75 |
| 6 | 3/4 - 1 | EXE6 | 4.95 |
| 7 | 1 - 1-3/8 | EXE7 | 8.50 |
| 8 | 1-3/8 - 1-3/4 | EXE8 | 12.00 |
| 9 | 1-3/4 - 2-1/8 | EXE9 | 19.75 |
| 10 | 2-1/8 - 2-1/2 | EXE10 | 29.00 |
| 11 | 2-1/2 - 3 | EXE11 | 44.50 |
| 12 | 3 - 3-1/2 | EXE12 | 69.00 |

● HEX DIE ADAPTERS

Hexagon die adapters are utilized when the space limitations do not allow the use of die stocks. These adapters convert round dies to hexagon dies.



| OD Size Round Die | Hex Size Across the Flats | Thickness | Tool No. | Price Each |
|-------------------|---------------------------|-----------|----------|------------|
| 13/16 | 1-1/16 | 11/32 | TWA1 | 27.00 |
| 1 | 1-1/4 | 15/32 | TWA2 | 27.00 |
| 1-1/2 | 1-31/32 | 13/16 | TWA3 | 28.20 |
| 2 | 2-9/16 | 3/4 | TWA4 | 29.40 |
| 2-1/2 | 3 | 29/32 | TWA5 | 44.40 |
| 3 | 3-1/2 | 1-1/4 | TWA6 | 65.00 |

● HEX DIE STOCK

For holding adjustable hex die stock.

| Hex Size | Diameter Across the Flats | Tool No. | Price Each |
|----------|---------------------------|----------|------------|
| 1 | 1 | TWHX1 | 15.00 |
| 1-7/16 | 1-7/16 | TWHX2 | 34.00 |

● 10 PIECE LEFT HAND DRILL AND SCREW EXTRACTOR SET

SET NO. EXL10

Contains 1 piece each
Left Hand Jobber Drills:
5/64, 7/64, 5/32, 1/4, 3/8
Screw Extractors: 1, 2, 3, 4, 5

SET PRICE — \$49.50



◆ SELF ALIGNING TAP & REAMER HOLDER SET

TOOL NO. TSA1

- Hardened jaws hold taps and reamers true, preventing breakage
- Set consists of tapping guide, tap holder and jaw "A" for 1/4" capacity taps and jaw "B" for 1/4 - 1/2" taps



PRICE EACH — \$27.75

● ROUND DIE STOCKS



For holding adjustable round split dies.

| Tool No. | Diameter of Die | Price Each |
|----------|-----------------|------------|
| TWS1 | 5/8 | 19.00 |
| TWS2 | 13/16 | 19.00 |
| TWS3 | 1 | 22.00 |
| TWS4 | 1-1/2 | 34.00 |
| TWS5 | 2 | 44.10 |
| TWS6 | 2-1/2 | 61.20 |
| TWS7 | 3 | 102.00 |
| TWS8 | 4 | 169.00 |
| TWS9 | 5 | 275.00 |

● DIE HOLDER

Can be used safely for threading shafts on lathes, milling machines and tapping heads.



| Size | Shank Size | Tool No. | Price Each |
|-------|------------|----------|------------|
| 13/16 | 1/2 | TWF1 | 29.00 |
| 1 | 1/2 | TWF2 | 29.00 |
| 1-1/2 | 3/4 | TWF3 | 44.00 |

◆ ADJUSTABLE TAP AND REAMER WRENCHES

STRAIGHT TYPE



Hardened and tempered jaws used for taps or reamers.

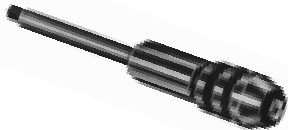
| Holding Capacity | | | | Tool No. | Price Each |
|----------------------|-------------------------|----------------|-------------------|----------|------------|
| Fractional Tap Sizes | Machine Screw Tap Sizes | Pipe Tap Sizes | Hand Reamer Sizes | | |
| 1/16 - 1/4 | 0-14 | — | 1/8 - 21/64 | TW0 | 14.88 |
| 1/16 - 3/8 | 0-14 | — | 1/8 - 25/64 | TW4 | 20.00 |
| 5/32 - 1/2 | 8-14 | — | 11/64 - 7/16 | TW5 | 28.31 |
| 5/32 - 3/4 | 8-14 | 1/8 - 1/4 | 11/64 - 41/64 | TW6 | 28.31 |
| 1/4 - 1-1/8 | — | 1/8 - 3/4 | 9/32 - 29/32 | TW7 | 31.56 |
| 1/2 - 1-3/8 | — | 1/8 - 1 | 3/8 - 1-5/32 | TW7S | 39.80 |
| 3/4 - 1-5/8 | — | 3/8 - 1-1/4 | 37/64 - 1-11/32 | TW8 | 94.37 |
| 7/8 - 2 | — | 1 - 2 | 3/4 - 1-1/2 | TW10 | 111.25 |
| 1 - 2-1/2 | — | 3/4 - 2 | 7/8 - 2-1/8 | TW22 | 122.50 |

◆ SCREW PITCH GAGES



| Tool No. | Range | No. of Leaves | Thread | Price Each |
|----------|------------|---------------|----------|------------|
| TSP-1 | #4 - #42 | 30 | American | 11.50 |
| TSP-2 | 0.25 - 2.5 | 28 | Metric | 10.90 |

◆ TAP EXTENSION



Eliminates the need for extension taps. Knurled grip chucks.

| Tap Capacity | Overall Length | Tool No. | Price Each |
|--------------|----------------|----------|------------|
| 1/4 | 7 | TEX1 | 9.90 |
| 1/2 | 10-3/4 | TEX2 | 12.00 |

◆ TAP GUIDE

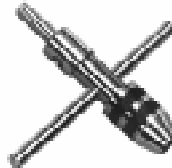


TOOL NO. TG1

- 1/2" diameter hardened shank
- Knurled for easy handling
- 3/16" diameter hardened tension pin
- Adjustable tension spring
- Reversible tension pin for male or female hole centering of tap

PRICE EACH — \$7.95

◆ PILOTED SPINDLE TAP WRENCH



For threading a drilled hole manually at one machine location without moving the workpiece. Hardened and tempered jaws.

| Tap Capacity | Tool No. | Price Each |
|--------------|----------|------------|
| 1/16 - 1/4 | TWP-1 | 12.00 |
| 1/4 - 1/2 | TWP-2 | 15.00 |

◆ MINI TAP WRENCH



- Ideal for small tapping applications

| Tap Capacity | Range | Tool No. | Price Each |
|--------------|------------|----------|------------|
| 1/4 | #0 - 1/4 | TWM1 | 4.80 |
| 1/2 | 5/16 - 1/2 | TWM2 | 5.90 |

◆ "T" HANDLE TAP WRENCHES

PLAIN TYPE



For hand tapping and for driving screw extractors, heavy knurled cap for better grip.

| Tap Capacity | | Tool No. | Price Each |
|--------------|---------------|----------|------------|
| Frac. Taps | Machine Screw | | |
| 1/16-5/32 | 0-8 | TWH-1 | 4.95 |
| 5/32-1/4 | 8-12 | TWH-2 | 5.50 |
| 1/4-1/2 | 12 | TWH-3 | 8.75 |

REVERSIBLE RATCHET TYPE

| Tap Capacity | | Tool No. | Price Each |
|--------------|---------------|----------|------------|
| Frac. Taps | Machine Screw | | |
| 1/16-5/32 | 0-8 | TWR-1 | 9.78 |
| 5/32-1/4 | 8-12 | TWR-2 | 10.95 |
| 1/4-1/2 | 12 | TWR-3 | 14.34 |

TAP WRENCH SETS

SET NO. TWHS

3 piece plain type tap Wrench Set
1/16 - 1/2" Capacity
SET PRICE — \$18.50

SET NO. TWRS

3 piece reversible type tap Wrench Set
1/16 - 1/2" Capacity
SET PRICE — \$33.95

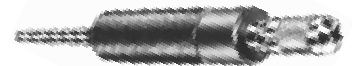
◆ EXTRA LONG TAP WRENCH



13" long, hardened and tempered jaws.

| Tap Capacity | Tool No. | Price Each |
|--------------|----------|------------|
| 5/32 - 1/4 | TWX1 | 16.70 |
| 1/4 - 1/2 | TWX4 | 23.30 |

◆ MACHINE TAPPING GUIDE



TOOL NO. TG2

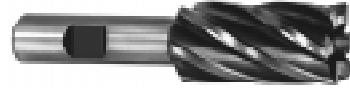
- Provides sensitive feel for hand tapping small holes
- Starts every hole straight and prevents tap breakage
- Shank diameter 3/8, handle diameter 1"
- #0 to #12 Tap Capacity

PRICE EACH — \$18.95

SINGLE-END END MILLS

MULTI-FLUTE, REGULAR LENGTH

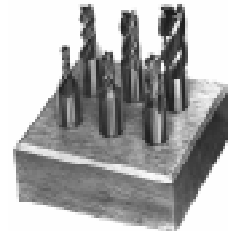
- ▶ LIST NO. 205 — QUALITY IMPORT
- LIST NO. 205U — MADE IN U.S.A.
- ▶ LIST NO. 240 — QUALITY IMPORT, CENTER CUTTING
- LIST NO. 240U — MADE IN U.S.A., CENTER CUTTING



These end mills are designed for general purpose end milling in most types of materials.

| Diameter of Cut | Shank Diameter | Length of Cut | Overall Length | No. of Flutes | Price Each | | | |
|-----------------|----------------|---------------|----------------|---------------|-----------------------------|---------------------------|--------------------------------|------------------------------|
| | | | | | Quality Import List No. 205 | Made in USA List No. 205U | Import Center Cut List No. 240 | USA Center Cut List No. 240U |
| 1/8 | 3/8 | 3/8 | 2-5/16 | 4 | 14.20 | 17.49 | 16.40 | 20.50 |
| 5/32 | 3/8 | 7/16 | 2-1/4 | 4 | 15.13 | 19.19 | — | — |
| 3/16 | 3/8 | 1/2 | 2-3/8 | 4 | 14.20 | 17.49 | 16.40 | 20.50 |
| 7/32 | 3/8 | 5/8 | 2-3/8 | 4 | 15.13 | 19.19 | — | — |
| 1/4 | 3/8 | 5/8 | 2-7/16 | 4 | 14.20 | 17.49 | 16.40 | 20.50 |
| 9/32 | 3/8 | 11/16 | 2-1/2 | 4 | 15.13 | 17.90 | — | — |
| 5/16 | 3/8 | 3/4 | 2-1/2 | 4 | 14.20 | 17.49 | 16.40 | 20.50 |
| 11/32 | 3/8 | 3/4 | 2-1/2 | 4 | 15.13 | 17.90 | — | — |
| 3/8 | 3/8 | 3/4 | 2-1/2 | 4 | 14.20 | 17.49 | 16.40 | 20.50 |
| 13/32 | 3/8 | 1 | 2-11/16 | 4 | 19.00 | 24.70 | — | — |
| 7/16 | 3/8 | 1 | 2-11/16 | 4 | 19.00 | 23.20 | 23.50 | 29.00 |
| 15/32 | 3/8 | 1 | 2-11/16 | 4 | 19.00 | 23.20 | — | — |
| 1/2 | 3/8 | 1 | 2-11/16 | 4 | 19.00 | 22.90 | 23.50 | 29.00 |
| 1/2 | 1/2 | 1-1/4 | 3-1/4 | 4 | 19.40 | 22.90 | 23.50 | 29.00 |
| 9/16 | 1/2 | 1-3/8 | 3-3/8 | 4 | 24.60 | 29.90 | 27.90 | 41.00 |
| 5/8 | 1/2 | 1-3/8 | 3-3/8 | 4 | 26.80 | 32.80 | — | — |
| 5/8 | 5/8 | 1-5/8 | 3-3/4 | 4 | 29.00 | 36.70 | 32.50 | 39.11 |
| 11/16 | 1/2 | 1-5/8 | 3-5/8 | 4 | 29.80 | 35.10 | — | — |
| 11/16 | 5/8 | 1-5/8 | 3-3/4 | 4 | 30.80 | 37.85 | 33.80 | 41.20 |
| 3/4 | 1/2 | 1-5/8 | 3-5/8 | 4 | 32.00 | 37.10 | — | — |
| 3/4 | 5/8 | 1-5/8 | 3-3/4 | 4 | 32.00 | 39.25 | — | — |
| 3/4 | 3/4 | 1-5/8 | 3-7/8 | 4 | 33.20 | 40.75 | 38.00 | 46.78 |
| 13/16 | 1/2 | 1-7/8 | 4 | 4 | 40.80 | — | — | — |
| 13/16 | 5/8 | 1-7/8 | 4 | 4 | 40.80 | — | — | — |
| 13/16 | 5/8 | 1-7/8 | 4 | 6 | 40.80 | 50.00 | — | — |
| 13/16 | 3/4 | 1-7/8 | 4-1/8 | 4 | 41.58 | 47.00 | — | — |
| 7/8 | 1/2 | 1-5/8 | 3-5/8 | 4 | 42.00 | — | — | — |
| 7/8 | 5/8 | 1-7/8 | 4 | 6 | 42.00 | 51.35 | — | — |
| 7/8 | 3/4 | 1-7/8 | 4-1/8 | 4 | 43.40 | 51.35 | 48.00 | 59.90 |
| 7/8 | 7/8 | 1-7/8 | 4-1/8 | 4 | 41.40 | 50.60 | — | — |
| 15/16 | 1/2 | 1-7/8 | 4 | 6 | 45.96 | — | — | — |
| 15/16 | 5/8 | 1-7/8 | 4 | 6 | 45.96 | — | — | — |
| 15/16 | 3/4 | 1-7/8 | 4-1/8 | 4 | 49.58 | 63.90 | — | — |
| 15/16 | 7/8 | 1-7/8 | 4-1/8 | 4 | 49.58 | 57.20 | — | — |
| 1 | 1/2 | 1-7/8 | 3-7/8 | 4 | 48.00 | — | — | — |
| 1 | 5/8 | 1-7/8 | 4 | 6 | 48.00 | 58.60 | — | — |
| 1 | 3/4 | 1-7/8 | 4-1/8 | 4 | 47.20 | 57.50 | 53.00 | 69.00 |
| 1 | 7/8 | 1-7/8 | 4-1/8 | 4 | 47.20 | 57.50 | — | — |
| 1 | 1 | 2 | 4-1/2 | 4 | 50.00 | 60.95 | 55.00 | 69.00 |
| 1-1/16 | 3/4 | 2 | 4-1/4 | 6 | 73.00 | — | — | — |
| 1-1/8 | 3/4 | 1-1/2 | 3-7/8 | 6 | 68.00 | 85.70 | — | — |
| 1-1/8 | 7/8 | 2 | 4-1/4 | 6 | 66.00 | 80.69 | — | — |
| 1-1/8 | 1 | 2 | 4-1/2 | 6 | 68.00 | 83.20 | — | — |
| 1-3/16 | 3/4 | 1-1/2 | 3-7/8 | 6 | 73.00 | — | — | — |
| 1-1/4 | 3/4 | 1-1/2 | 3-7/8 | 6 | 75.00 | 88.00 | — | — |
| 1-1/4 | 7/8 | 2 | 4-1/4 | 6 | 72.00 | 88.00 | — | — |
| 1-1/4 | 1 | 2 | 4-1/2 | 6 | 74.40 | 90.84 | — | — |
| 1-1/4 | 1-1/4 | 2 | 4-1/2 | 4 | 80.00 | 94.00 | 86.25 | 107.00 |
| 1-1/4 | 1-1/4 | 2 | 4-1/2 | 6 | 80.00 | 94.00 | — | — |
| 1-5/16 | 3/4 | 1-1/2 | 3-7/8 | 6 | 94.00 | — | — | — |
| 1-3/8 | 3/4 | 1-1/2 | 3-7/8 | 6 | 96.00 | 108.00 | — | — |
| 1-3/8 | 1 | 2 | 4-1/2 | 6 | 89.00 | 110.39 | — | — |
| 1-3/8 | 1-1/4 | 2 | 4-1/2 | 6 | 89.00 | — | — | — |
| 1-7/16 | 3/4 | 1-1/2 | 3-7/8 | 6 | 100.00 | — | — | — |
| 1-1/2 | 3/4 | 1-1/2 | 3-7/8 | 6 | 100.00 | 121.30 | — | — |
| 1-1/2 | 1 | 2 | 4-1/2 | 6 | 100.00 | 116.00 | — | — |
| 1-1/2 | 1-1/4 | 2 | 4-1/2 | 4 | 100.00 | 116.00 | 106.25 | 132.00 |
| 1-1/2 | 1-1/4 | 2 | 4-1/2 | 6 | 100.00 | 116.00 | — | — |
| 1-5/8 | 3/4 | 1-1/2 | 3-7/8 | 6 | 109.09 | 126.90 | — | — |
| 1-5/8 | 1-1/4 | 2 | 4-1/2 | 6 | 109.09 | 126.90 | — | — |
| 1-3/4 | 3/4 | 1-1/2 | 3-7/8 | 6 | 118.00 | — | — | — |
| 1-3/4 | 1-1/4 | 2 | 4-1/2 | 4 | 118.00 | 137.00 | — | — |
| 1-3/4 | 1-1/4 | 2 | 4-1/2 | 6 | 118.00 | 137.00 | — | — |
| 1-7/8 | 3/4 | 1-1/2 | 3-7/8 | 6 | 127.34 | — | — | — |
| 1-7/8 | 1-1/4 | 2 | 4-1/2 | 4 | 127.34 | — | — | — |
| 1-7/8 | 1-1/4 | 2 | 4-1/2 | 6 | 127.34 | — | — | — |
| 1-7/8 | 1-1/4 | 2 | 4-1/2 | 8 | 127.34 | 137.00 | — | — |
| 2 | 3/4 | 1-1/2 | 3-7/8 | 6 | 144.00 | — | — | — |
| 2 | 1-1/4 | 2 | 4-1/2 | 4 | 144.00 | 165.90 | — | — |
| 2 | 1-1/4 | 2 | 4-1/2 | 6 | 144.00 | 165.90 | — | — |
| 2 | 1-1/4 | 2 | 4-1/2 | 8 | 144.00 | 165.90 | — | — |
| 2-1/4 | 1-1/4 | 2 | 4-1/2 | 6 | 195.00 | — | — | — |

SETS MULTI-FLUTE REGULAR LENGTH



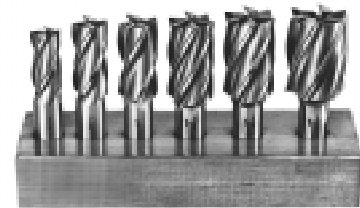
3/8" SHANK
6 Piece Set
Contains 1 piece of each:
1/8, 3/16, 1/4, 5/16, 3/8, 1/2
Supplied in wood block.

SET NO. 205A
QUALITY IMPORT
SET PRICE — \$88.50

SET NO. 205AU
MADE IN U.S.A.
SET PRICE — \$110.00

SET NO. 240A
QUALITY IMPORT
Center cutting
SET PRICE — \$105.00

SET NO. 240AU
MADE IN U.S.A.
Center cutting
SET PRICE — \$131.00



3/4" SHANK
6 Piece Set
Contains 1 piece of each:
3/4, 7/8, 1", 1-1/8, 1-1/4, 1-1/2
Supplied in wood block.

SET NO. 205S
QUALITY IMPORT
SET PRICE — \$363.50

SET NO. 205SU
MADE IN U.S.A.
SET PRICE — \$445.00

MULTI-FLUTE SINGLE-END END MILLS

MEDIUM FLUTE



► LIST NO. 206MF — QUALITY IMPORT

| Diameter of Cut | Shank Diameter | Length of Cut | Overall Length | No. of Flutes | Price Each |
|-----------------|----------------|---------------|----------------|---------------|------------|
| 1 | 1 | 3 | 5-1/2 | 4 | 60.00 |
| 1-1/4 | 1-1/4 | 3 | 5-1/2 | 4 | 95.00 |
| 1-1/4 | 1-1/4 | 3 | 5-1/2 | 6 | 95.00 |
| 1-1/2 | 1-1/4 | 3 | 5-1/2 | 4 | 123.00 |
| 1-1/2 | 1-1/4 | 3 | 5-1/2 | 6 | 123.00 |
| 1-3/4 | 1-1/4 | 3 | 5-1/2 | 6 | 152.00 |
| 2 | 1-1/4 | 3 | 5-1/2 | 6 | 194.00 |
| 2-1/4 | 1-1/4 | 3 | 5-1/2 | 6 | 264.00 |
| 2-1/2 | 1-1/4 | 3 | 5-1/2 | 6 | 283.00 |



◆ END MILL DISPENSER CABINETS — All Steel

| Description | Case No. | Price Each |
|--|----------|------------|
| Two Flute Single and Double End 1/16 to 1" | CZD10 | 299.00 |
| Four FLute Single and Double End 1/16 to 1" | CZD11 | 299.00 |
| Two and Four Flute Single and Double End 1/8 to 1" | CZD12 | 77.00 |

LONG FLUTE

► LIST NO. 206 — QUALITY IMPORT
● LIST NO. 206U — MADE IN U.S.A.



| Diameter of Cut | Shank Diameter | Length of Cut | Overall Length | No. of Flutes | Price Each | |
|-----------------|----------------|---------------|----------------|---------------|--------------|---------------|
| | | | | | List No. 206 | List No. 206U |
| 1/4 | 3/8 | 1-1/4 | 3-1/16 | 4 | 18.80 | 22.50 |
| 5/16 | 3/8 | 1-3/8 | 3-1/8 | 4 | 18.80 | 22.50 |
| 3/8 | 3/8 | 1-1/2 | 3-1/4 | 4 | 18.80 | 22.50 |
| 7/16 | 1/2 | 1-3/4 | 3-3/4 | 4 | 24.80 | 31.30 |
| 1/2 | 1/2 | 2 | 4 | 4 | 24.80 | 31.30 |
| 5/8 | 5/8 | 2-1/2 | 4-5/8 | 4 | 34.80 | 43.50 |
| 3/4 | 1/2 | 3 | 5-1/4 | 4 | 42.40 | — |
| 3/4 | 3/4 | 3 | 5-1/4 | 4 | 42.40 | 50.50 |
| 13/16 | 7/8 | 3-1/2 | 5-3/4 | 4 | 56.00 | — |
| 7/8 | 3/4 | 3-1/2 | 5-3/4 | 4 | 53.40 | — |
| 7/8 | 7/8 | 3-1/2 | 5-3/4 | 4 | 53.40 | 66.80 |
| 1 | 3/4 | 4 | 6-1/2 | 4 | 72.00 | — |
| 1 | 1 | 4 | 6-1/2 | 4 | 70.00 | 86.80 |

| Diameter of Cut | Shank Diameter | Length of Cut | Overall Length | No. of Flutes | Price Each | |
|-----------------|----------------|---------------|----------------|---------------|--------------|---------------|
| | | | | | List No. 206 | List No. 206U |
| 1-1/8 | 1 | 4 | 6-1/2 | 6 | 92.00 | — |
| 1-1/4 | 3/4 | 4 | 6-1/2 | 6 | 115.00 | — |
| 1-1/4 | 1 | 4 | 6-1/2 | 6 | 110.00 | — |
| 1-1/4 | 1-1/4 | 4 | 6-1/2 | 4 | 110.00 | — |
| 1-1/4 | 1-1/4 | 4 | 6-1/2 | 6 | 110.00 | 134.70 |
| 1-3/8 | 1 | 4 | 6-1/2 | 6 | 129.17 | — |
| 1-1/2 | 1 | 4 | 6-1/2 | 6 | 135.00 | — |
| 1-1/2 | 1-1/4 | 4 | 6-1/2 | 4 | 135.00 | — |
| 1-1/2 | 1-1/4 | 4 | 6-1/2 | 6 | 135.00 | 171.40 |
| 1-1/2 | 1-1/4 | 6 | 8-1/2 | 6 | 145.00 | — |
| 1-3/4 | 1-1/4 | 4 | 6-1/2 | 6 | 170.00 | — |
| 2 | 1-1/4 | 4 | 6-1/2 | 6 | 208.00 | — |
| 2 | 1-1/4 | 4 | 6-1/2 | 8 | 208.00 | 257.00 |

EXTRA LONG FLUTE

► LIST NO. 207 — QUALITY IMPORT
● LIST NO. 207U — MADE IN U.S.A.



| Diameter of Cut | Shank Diameter | Length of Cut | Overall Length | No. of Flutes | Price Each | |
|-----------------|----------------|---------------|----------------|---------------|--------------|---------------|
| | | | | | List No. 207 | List No. 207U |
| 1/4 | 3/8 | 1-3/4 | 3-9/16 | 4 | 21.60 | 25.50 |
| 5/16 | 3/8 | 2 | 3-3/4 | 4 | 22.60 | 26.90 |
| 3/8 | 3/8 | 2-1/2 | 4-1/4 | 4 | 23.60 | 27.48 |
| 1/2 | 1/2 | 3 | 5 | 4 | 29.60 | 35.25 |
| 5/8 | 1/2 | 4 | 6-1/8 | 4 | 42.00 | — |
| 5/8 | 5/8 | 4 | 6-1/8 | 4 | 42.00 | 50.90 |
| 3/4 | 1/2 | 4 | 6-1/4 | 4 | 51.00 | — |

| Diameter of Cut | Shank Diameter | Length of Cut | Overall Length | No. of Flutes | Price Each | |
|-----------------|----------------|---------------|----------------|---------------|--------------|---------------|
| | | | | | List No. 207 | List No. 207U |
| 3/4 | 3/4 | 4 | 6-1/4 | 4 | 50.00 | 59.80 |
| 7/8 | 7/8 | 5 | 7-1/4 | 4 | 65.00 | — |
| 1 | 1 | 6 | 8-1/2 | 4 | 86.00 | 104.20 |
| 1-1/4 | 1-1/4 | 6 | 8-1/2 | 4 | 130.00 | — |
| 1-1/4 | 1-1/4 | 6 | 8-1/2 | 6 | 130.00 | 156.95 |
| 1-1/2 | 1-1/4 | 8 | 10-1/2 | 6 | 206.00 | — |

HEAVY DUTY WITH COMBINATION SHANKS

● LIST NO. 277 — QUALITY IMPORT



| Diameter of Cut | Shank Diameter | Length of Cut | Overall Length | No. of Flutes | Price Each |
|-----------------|----------------|---------------|----------------|---------------|------------|
| 2 | 1-1/2 | 4 | 6-7/8 | 3 | 268.00 |
| 2 | 2 | 2 | 5-3/4 | 6 | 207.00 |
| 2 | 2 | 2 | 5-3/4 | 4 | 199.00 |
| 2 | 2 | 3 | 6-3/4 | 2 | 198.00 |
| 2 | 2 | 3 | 6-3/4 | 3 | 268.00 |
| 2 | 2 | 4 | 7-3/4 | 2 | 237.00 |
| 2 | 2 | 4 | 7-3/4 | 3 | 268.00 |
| 2 | 2 | 4 | 7-3/4 | 4 | 230.00 |
| 2 | 2 | 4 | 7-3/4 | 6 | 230.00 |
| 2 | 2 | 4 | 7-3/4 | 6 Ball | 330.00 |
| 2 | 2 | 5 | 8-3/4 | 2 | 256.00 |
| 2 | 2 | 5 | 8-3/4 | 2 Ball | 365.50 |
| 2 | 2 | 6 | 9-3/4 | 2 | 278.00 |
| 2 | 2 | 6 | 9-3/4 | 3 | 280.00 |
| 2 | 2 | 6 | 9-3/4 | 4 | 280.00 |
| 2 | 2 | 6 | 9-3/4 | 6 Cobalt | 540.00 |
| 2 | 2 | 6 | 9-3/4 | 6 Ball | 406.00 |
| 2 | 2 | 6 | 9-3/4 | 8 | 280.00 |
| 2 | 2 | 8 | 11-3/4 | 6 | 334.00 |

| Diameter of Cut | Shank Diameter | Length of Cut | Overall Length | No. of Flutes | Price Each |
|-----------------|----------------|---------------|----------------|---------------|------------|
| 2 | 2 | 8 | 11-3/4 | 6 Ball | 478.00 |
| 2 | 2 | 10 | 13-3/4 | 6 | 388.00 |
| 2-1/2 | 2 | 4 | 7-3/4 | 4 | 320.00 |
| 2-1/2 | 2 | 6 | 9-3/4 | 6 | 320.00 |
| 2-1/2 | 2 | 4 | 7-3/4 | 2 | 516.00 |
| 2-1/2 | 2 | 6 | 9-3/4 | 6 | 400.00 |
| 2-1/2 | 2 | 8 | 11-5/8 | 4 | 468.00 |
| 2-1/2 | 2 | 8 | 11-5/8 | 6 | 468.00 |
| 2-1/2 | 2-1/2 | 4 | 8 | 3 | 327.00 |
| 2-1/2 | 2-1/2 | 4 | 8 | 4 | 331.00 |
| 2-1/2 | 2-1/2 | 4 | 8 | 6 | 331.00 |
| 2-1/2 | 2-1/2 | 5 | 9 | 4 | 413.00 |
| 2-1/2 | 2-1/2 | 5 | 9 | 6 | 413.00 |
| 2-1/2 | 2-1/2 | 6 | 10 | 2 | 500.00 |
| 2-1/2 | 2-1/2 | 6 | 10 | 3 | 525.00 |
| 2-1/2 | 2-1/2 | 6 | 10 | 4 | 442.00 |
| 3 | 2-1/2 | 4 | 7-3/4 | 8 | 418.00 |
| 3 | 2-1/2 | 5 | 8-3/4 | 6 | 458.00 |
| 3 | 2-1/2 | 5 | 8-3/4 | 8 | 458.00 |



SINGLE-END END MILLS

These end mills are designed for plunge cutting to be used in slotting operations for all types of materials.

TWO FLUTE, REGULAR LENGTH

- ▶ LIST NO. 231 — QUALITY IMPORT
- LIST NO. 231U — MADE IN U.S.A.



| Diameter of Cut | Shank Diameter | Length of Cut | Overall Length | Price Each | |
|-----------------|----------------|---------------|----------------|-----------------------------|---------------------------|
| | | | | Quality Import List No. 231 | Made in USA List No. 231U |
| 1/8 | 3/8 | 3/8 | 2-5/16 | 13.40 | 15.95 |
| 5/32 | 3/8 | 3/8 | 2-1/4 | 13.40 | 18.25 |
| 3/16 | 3/8 | 7/16 | 2-5/16 | 13.40 | 15.95 |
| 7/32 | 3/8 | 1/2 | 2-1/4 | 13.40 | 18.25 |
| 1/4 | 3/8 | 1/2 | 2-5/16 | 13.40 | 15.95 |
| 9/32 | 3/8 | 9/16 | 2-1/4 | 13.40 | 18.25 |
| 5/16 | 3/8 | 9/16 | 2-5/16 | 13.40 | 15.95 |
| 11/32 | 3/8 | 9/16 | 2-1/4 | 13.40 | 18.25 |
| 3/8 | 3/8 | 9/16 | 2-5/16 | 13.40 | 15.95 |
| 13/32 | 3/8 | 13/16 | 2-1/2 | 19.80 | 23.70 |
| 7/16 | 3/8 | 13/16 | 2-1/2 | 19.80 | 23.70 |
| 15/32 | 3/8 | 13/16 | 2-1/2 | 19.80 | 23.70 |
| 1/2 | 3/8 | 13/16 | 2-1/2 | 19.80 | 23.70 |
| 1/2 | 1/2 | 1 | 3 | 21.00 | 23.75 |
| 9/16 | 1/2 | 1-1/8 | 3-1/8 | 24.48 | 28.12 |
| 19/32 | 1/2 | 1-1/8 | 3-1/8 | 28.50 | — |
| 5/8 | 1/2 | 1-1/8 | 3-1/8 | 27.44 | 32.70 |
| 5/8 | 5/8 | 1-5/16 | 3-7/16 | 27.80 | 32.00 |
| 11/16 | 1/2 | 1-5/16 | 3-5/16 | 29.60 | 34.95 |
| 11/16 | 5/8 | 1-5/16 | 3-7/16 | 29.60 | 34.95 |
| 3/4 | 1/2 | 1-5/16 | 3-5/16 | 31.60 | 37.50 |
| 3/4 | 5/8 | 1-5/16 | 3-7/16 | 31.60 | 37.50 |
| 3/4 | 3/4 | 1-5/16 | 3-9/16 | 31.60 | 37.50 |
| 13/16 | 1/2 | 1-1/2 | 3-1/2 | 37.20 | — |
| 13/16 | 5/8 | 1-1/2 | 3-5/8 | 37.20 | 46.90 |
| 13/16 | 3/4 | 1-1/2 | 3-3/4 | 37.20 | 46.90 |
| 7/8 | 1/2 | 1-1/2 | 3-1/2 | 37.20 | — |
| 7/8 | 5/8 | 1-1/2 | 3-5/8 | 37.20 | 46.30 |
| 7/8 | 3/4 | 1-1/2 | 3-3/4 | 37.20 | 46.30 |
| 7/8 | 7/8 | 1-1/2 | 3-3/4 | 39.00 | 46.30 |
| 15/16 | 5/8 | 1-1/2 | 3-3/8 | 44.20 | 51.98 |
| 15/16 | 3/4 | 1-1/2 | 3-3/4 | 44.20 | 52.38 |
| 15/16 | 7/8 | 1-1/2 | 3-3/4 | 44.20 | 51.98 |
| 1 | 1/2 | 1-1/2 | 3-5/8 | 44.20 | — |
| 1 | 5/8 | 1-1/2 | 3-5/8 | 44.20 | 51.80 |
| 1 | 3/4 | 1-1/2 | 3-3/4 | 44.20 | 51.80 |
| 1 | 7/8 | 1-1/2 | 3-3/4 | 44.20 | 55.20 |
| 1 | 1 | 1-5/8 | 4-1/2 | 47.20 | 62.90 |
| 1-1/16 | 3/4 | 1-1/2 | 3-7/8 | 63.40 | — |
| 1-1/8 | 3/4 | 1-1/2 | 3-7/8 | 63.40 | 95.00 |
| 1-1/8 | 7/8 | 1-5/8 | 4-5/16 | 68.80 | 85.00 |
| 1-1/8 | 1 | 1-5/8 | 4-1/2 | 68.80 | 85.00 |
| 1-3/16 | 3/4 | 1-1/2 | 3-7/8 | 80.20 | — |
| 1-1/4 | 3/4 | 1-1/2 | 3-7/8 | 80.20 | 104.00 |
| 1-1/4 | 7/8 | 1-5/8 | 4-5/16 | 67.80 | 88.50 |
| 1-1/4 | 1 | 1-5/8 | 4-1/2 | 76.80 | 96.00 |
| 1-1/4 | 1-1/4 | 1-5/8 | 4-1/2 | 82.20 | 96.00 |
| 1-5/16 | 3/4 | 1-1/2 | 3-7/8 | 95.40 | — |
| 1-3/8 | 3/4 | 1-1/2 | 3-7/8 | 95.40 | 113.80 |
| 1-3/8 | 1 | 1-5/8 | 4-1/2 | 91.20 | 106.90 |
| 1-3/8 | 1-1/4 | 1-5/8 | 4-1/2 | 91.20 | — |
| 1-7/16 | 3/4 | 1-1/2 | 3-7/8 | 95.60 | — |
| 1-1/2 | 3/4 | 1-1/2 | 3-7/8 | 95.60 | 124.50 |
| 1-1/2 | 1 | 1-5/8 | 4-1/2 | 100.00 | 117.10 |
| 1-1/2 | 1-1/4 | 1-5/8 | 4-1/2 | 100.00 | 117.10 |
| 1-5/8 | 3/4 | 1-1/2 | 3-7/8 | 110.28 | — |
| 1-5/8 | 1-1/4 | 1-5/8 | 4-1/2 | 109.55 | 125.71 |
| 1-3/4 | 3/4 | 1-1/2 | 3-7/8 | 130.00 | — |
| 1-3/4 | 1-1/4 | 1-5/8 | 4-1/2 | 120.00 | 139.95 |
| 1-7/8 | 3/4 | 1-1/2 | 3-7/8 | 132.00 | — |
| 1-7/8 | 1-1/4 | 1-5/8 | 4-1/2 | 129.36 | 151.39 |
| 2 | 3/4 | 1-1/2 | 3-7/8 | 148.50 | — |
| 2 | 1-1/4 | 1-5/8 | 4-1/2 | 142.00 | 162.00 |
| 2 | 1-1/4 | 2-1/2 | 5 | 152.15 | — |

TWO FLUTE, LONG LENGTH

- LIST NO. 233 — QUALITY IMPORT

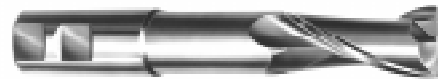


| Diameter of Cut | Shank Diameter | Length of Cut | Overall Length | Price Each |
|-----------------|----------------|---------------|----------------|------------|
| 1/4 | 3/8 | 1-1/2 | 3-1/4 | 20.73 |
| 5/16 | 3/8 | 1-1/2 | 3-1/4 | 20.73 |
| 3/8 | 3/8 | 1-1/2 | 3-1/4 | 20.80 |
| 1/2 | 1/2 | 2 | 4 | 26.40 |
| 1/2 | 1/2 | 3 | 5-1/16 | 35.28 |
| 5/8 | 1/2 | 2-3/8 | 4-1/2 | 33.00 |
| 5/8 | 5/8 | 2 | 4-1/8 | 30.80 |
| 5/8 | 5/8 | 2-1/2 | 4-5/8 | 38.69 |
| 5/8 | 5/8 | 3 | 5-1/8 | 46.57 |
| 3/4 | 1/2 | 2-3/4 | 5-1/4 | 39.79 |
| 3/4 | 3/4 | 2-1/4 | 4-1/2 | 37.20 |
| 7/8 | 7/8 | 2-1/2 | 4-3/4 | 45.63 |
| 7/8 | 7/8 | 3 | 5-1/4 | 47.09 |
| 1 | 1 | 3 | 5-1/2 | 61.20 |
| 1-1/8 | 1 | 3 | 5-1/2 | 81.79 |
| 1-1/4 | 1 | 3 | 5-1/2 | 95.60 |
| 1-1/4 | 1-1/4 | 3 | 5-1/2 | 95.60 |
| 1-3/8 | 1 | 3 | 5-1/2 | 104.11 |
| 1-1/2 | 1-1/4 | 3 | 5-1/2 | 115.00 |
| 1-5/8 | 1-1/4 | 3 | 5-1/2 | 131.69 |
| 1-3/4 | 1-1/4 | 3 | 5-1/2 | 144.00 |
| 1-7/8 | 1-1/4 | 3 | 5-1/2 | 163.91 |
| 2 | 1-1/4 | 3 | 5-1/2 | 173.00 |
| 2 | 2 | 4-1/2 | 7-3/4 | 230.00 |

Titanium Nitride coating available. Please inquire.

● TWO FLUTE, EXTENSION TYPE

- LIST NO. 234 — QUALITY IMPORT



| Diameter of Cut | Shank Diameter | Length of Cut | Overall Length | Price Each |
|-----------------|----------------|---------------|----------------|------------|
| 1/8 | 3/8 | 3/8 | 2-3/8 | 20.20 |
| 3/16 | 3/8 | 1/2 | 2-11/16 | 20.20 |
| 1/4 | 3/8 | 5/8 | 3-1/16 | 20.20 |
| 5/16 | 3/8 | 3/4 | 3-5/16 | 20.20 |
| 3/8 | 3/8 | 3/4 | 3-5/16 | 20.20 |
| 1/2 | 1/2 | 1 | 4 | 24.20 |
| 5/8 | 1/2 | 1-3/8 | 4-1/2 | 35.60 |
| 5/8 | 5/8 | 1-3/8 | 4-5/8 | 35.60 |
| 3/4 | 1/2 | 1-5/8 | 5-1/4 | 45.20 |
| 3/4 | 3/4 | 1-5/8 | 5-3/8 | 45.20 |
| 7/8 | 7/8 | 2 | 6 | 58.60 |
| 1 | 1 | 2-1/2 | 7-1/4 | 80.00 |
| 1-1/4 | 1-1/4 | 3 | 7-1/4 | 110.00 |

Titanium Nitride coating available. Please inquire.

SETS

TWO FLUTE, REGULAR LENGTH



3/8" SHANK

6 Piece Set
Contains 1 piece of each:
1/8, 3/16, 1/4, 5/16, 3/8, 1/2
Supplied in wood block.

3/4" SHANK

6 Piece Set
Contains 1 piece of each:
3/4, 7/8, 1, 1-1/8, 1-1/4, 1-1/2
Supplied in wood block.

SET NO. 231A
QUALITY IMPORT
SET PRICE — \$89.00

SET NO. 231S
QUALITY IMPORT
SET PRICE — \$349.00

SET NO. 231AU
MADE IN U.S.A.
SET PRICE — \$103.00

SET NO. 231SU
MADE IN U.S.A.
SET PRICE — \$459.00

METRIC END MILLS

FOUR FLUTE, SINGLE END

▶ LIST NO. 205M



TWO FLUTE, SINGLE END

▶ LIST NO. 231M



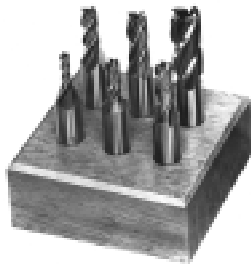
These end mills are designed for general purpose end milling in all types of materials.

| Diameter of Cut mm | Shank Diameter Inches | Length of Cut Inches | Overall Length Inches | Price Each | Shank Diameter Inches | Length of Cut Inches | Overall Length Inches | Price Each |
|--------------------|-----------------------|----------------------|-----------------------|-----------------------|-----------------------|----------------------|-----------------------|-----------------------|
| | | | | 4 Flute List No. 205M | | | | 2 Flute List No. 231M |
| 3 | 3/8 | 3/8 | 2-5/16 | 17.09 | 3/8 | 3/8 | 2-5/16 | 17.39 |
| 4 | 3/8 | 1/2 | 2-3/8 | 17.09 | 3/8 | 7/16 | 2-5/16 | 17.39 |
| 4.5 | 3/8 | 1/2 | 2-3/8 | 17.09 | — | — | — | — |
| 5 | 3/8 | 9/16 | 2-1/2 | 17.09 | 3/8 | 1/2 | 2-5/16 | 17.39 |
| 6 | 3/8 | 5/8 | 2-1/2 | 17.09 | 3/8 | 1/2 | 2-5/16 | 17.39 |
| 7 | 3/8 | 3/4 | 2-1/2 | 17.09 | 3/8 | 9/16 | 2-5/16 | 17.39 |
| 8 | 3/8 | 3/4 | 2-1/2 | 17.09 | 3/8 | 9/16 | 2-5/16 | 17.39 |
| 9 | 3/8 | 3/4 | 2-1/2 | 17.09 | 3/8 | 9/16 | 2-5/16 | 17.39 |
| 10 | 3/8 | 1 | 2-11/16 | 21.09 | 3/8 | 13/16 | 2-1/2 | 21.09 |
| 11 | 3/8 | 1 | 2-11/16 | 22.89 | 3/8 | 13/16 | 2-1/2 | 25.38 |
| 12 | 3/8 | 1 | 2-11/16 | 23.39 | 3/8 | 13/16 | 2-1/2 | 26.69 |
| 12 | — | — | — | — | 1/2 | 1-1/8 | 3-1/8 | 26.69 |
| 13 | 1/2 | 1-1/4 | 3-1/4 | 26.69 | 1/2 | 1-1/8 | 3-1/8 | 33.09 |
| 14 | 1/2 | 1-1/4 | 3-1/4 | 26.69 | 1/2 | 1-1/8 | 3-1/8 | 33.09 |
| 15 | 1/2 | 1-3/8 | 3-3/8 | 27.89 | 1/2 | 1-1/8 | 3-1/8 | 33.09 |
| 16 | — | — | — | — | 1/2 | 1-1/8 | 3-1/8 | 35.49 |
| 16 | 5/8 | 1-5/8 | 3-3/4 | 32.08 | 5/8 | 1-5/16 | 3-7/16 | 35.49 |
| 18 | 5/8 | 1-5/8 | 3-3/4 | 35.99 | 1/2 | 1-5/16 | 3-7/16 | 39.49 |
| 18 | 3/4 | 1-5/8 | 3-3/4 | 35.99 | 5/8 | 1-5/16 | 3-7/16 | 39.49 |
| 18 | 1/2 | 1-1/2 | 3-5/8 | 35.99 | — | — | — | — |
| 19 | 3/4 | 1-5/8 | 3-3/4 | 38.09 | 3/4 | 1-5/16 | 3-7/16 | 40.69 |
| 20 | 5/8 | 1-7/8 | 4-1/8 | 38.09 | 5/8 | 1-1/2 | 3-3/4 | 47.29 |
| 20 | 3/4 | 1-7/8 | 4-1/8 | 38.09 | 3/4 | 1-1/2 | 3-3/4 | 47.29 |
| 22 | 3/4 | 1-7/8 | 4-1/8 | 48.59 | 3/4 | 1-1/2 | 3-3/4 | 50.49 |
| 22 | 7/8 | 1-7/8 | 4-1/8 | 48.59 | 7/8 | 1-1/2 | 3-3/4 | 50.49 |
| 24 | 3/4 | 2 | 4-1/2 | 56.89 | 1/2 | 2 | 4-1/2 | 60.09 |
| 24 | 7/8 | 2 | 4-1/2 | 56.89 | 3/4 | 2 | 4-1/2 | 60.09 |
| 25 | 3/4 | 1-7/8 | 4-1/2 | 59.90 | 3/4 | 2 | 4-1/2 | 60.09 |
| 25 | 1 | 2 | 4-1/2 | 59.90 | 1 | 2 | 4-1/2 | 60.09 |
| 26 | — | — | — | — | 3/4 | 2 | 4-1/2 | 99.98 |
| 26 | 1 | 2 | 4-1/2 | 98.00 | 1 | 2 | 4-1/2 | 99.98 |
| 30 | — | — | — | — | 1 | 2 | 4-1/2 | 99.98 |
| 32 | 1 | 2 | 4-1/2 | 109.99 | 1 | 2 | 4-1/2 | 113.99 |
| 36 | 1 | 2 | 4-1/2 | 109.99 | 1 | 2 | 4-1/2 | 113.99 |

SETS

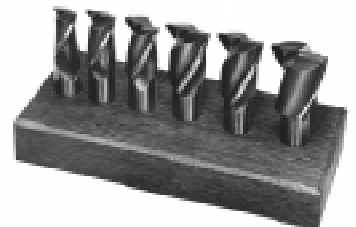
SET NO. 205MA

6 Piece Set — 4 Flute
3/8" Shanks
Contains 1 piece of each:
3mm, 5mm, 7mm, 8mm, 10mm
and 12mm
Supplied in wood block.
SET PRICE — \$113.00



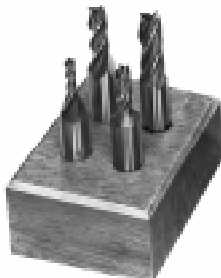
SET NO. 231MA

6 Piece Set — 2 Flute
3/8" Shanks
Contains 1 piece of each:
3mm, 5mm, 7mm, 8mm, 10mm
and 12mm
Supplied in wood block.
SET PRICE — \$117.00



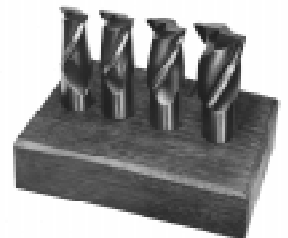
SET NO. 205MB

4 Piece Set — 4 Flute
Contains 1 piece of each:
14mm with 1/2 shank, 16mm with 5/8 shank,
20mm with 3/4 shank, 24mm with 3/4 shank
Supplied in wood block.
SET PRICE — \$154.00



SET NO. 231MB

4 Piece Set — 2 Flute
Contains 1 piece of each:
14mm with 1/2 shank, 16mm with 5/8 shank,
20mm with 3/4 shank, 24mm with 3/4 shank
Supplied in wood block.
SET PRICE — \$176.00



DOUBLE-END END MILLS

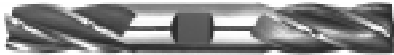
TWO FLUTE



- ▶ LIST NO. 261 — QUALITY IMPORT
- LIST NO. 261U — MADE IN U.S.A.

| Dia. of Cut | Shank Dia. | Length of Cut | Overall Length | Price Each | |
|-------------|------------|---------------|----------------|--------------|---------------|
| | | | | List No. 261 | List No. 261U |
| 1/8 | 3/8 | 3/8 | 3-1/16 | 19.80 | 24.70 |
| 5/32 | 3/8 | 7/16 | 3-1/8 | 20.20 | 24.70 |
| 11/64 | 3/8 | 7/16 | 3-1/8 | 20.39 | — |
| 3/16 | 3/8 | 7/16 | 3-1/8 | 19.40 | 24.70 |
| 13/64 | 3/8 | 1/2 | 3-1/8 | 20.81 | — |
| 7/32 | 3/8 | 1/2 | 3-1/8 | 20.20 | 24.70 |
| 1/4 | 3/8 | 1/2 | 3-1/8 | 19.40 | 24.70 |
| 9/32 | 3/8 | 9/16 | 3-1/8 | 20.20 | 24.70 |
| 5/16 | 3/8 | 9/16 | 3-1/8 | 19.40 | 24.70 |
| 21/64 | 3/8 | 9/16 | 3-1/8 | 20.81 | — |
| 11/32 | 3/8 | 9/16 | 3-1/8 | 20.20 | 24.70 |
| 3/8 | 3/8 | 9/16 | 3-1/8 | 19.40 | 24.70 |
| 13/32 | 1/2 | 13/16 | 3-3/4 | 30.60 | 37.25 |
| 7/16 | 1/2 | 13/16 | 3-3/4 | 28.60 | 35.70 |
| 15/32 | 1/2 | 13/16 | 3-3/4 | 30.60 | 37.25 |
| 1/2 | 1/2 | 13/16 | 3-3/4 | 30.60 | 37.25 |
| 9/16 | 5/8 | 1-1/8 | 4-1/2 | 40.40 | 49.30 |
| 5/8 | 5/8 | 1-1/8 | 4-1/2 | 40.40 | 49.30 |
| 11/16 | 3/4 | 1-5/16 | 5 | 50.00 | 62.00 |
| 23/32 | 3/4 | 1-5/16 | 5 | 53.00 | — |
| 3/4 | 3/4 | 1-5/16 | 5 | 50.00 | 62.00 |
| 25/32 | 7/8 | 1-9/16 | 5-1/2 | 56.65 | — |
| 13/16 | 7/8 | 1-9/16 | 5-1/2 | 63.60 | 78.00 |
| 27/32 | 7/8 | 1-9/16 | 5-1/2 | 65.92 | — |
| 7/8 | 7/8 | 1-9/16 | 5-1/2 | 64.00 | 78.00 |
| 29/32 | 1 | 1-5/8 | 5-7/8 | 80.34 | — |
| 15/16 | 1 | 1-5/8 | 5-7/8 | 78.00 | 96.00 |
| 31/32 | 1 | 1-5/8 | 5-7/8 | 80.34 | — |
| 1 | 1 | 1-5/8 | 5-7/8 | 78.00 | 96.00 |

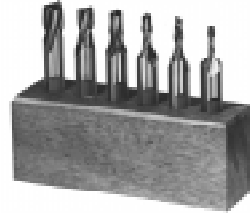
FOUR FLUTE



- ▶ LIST NO. 241 — QUALITY IMPORT
- LIST NO. 241U — MADE IN U.S.A.
- ▶ LIST NO. 242 — QUALITY IMPORT CENTER CUT
- LIST NO. 242U — MADE IN U.S.A. CENTER CUT

| Dia. of Cut | Shank Dia. | Length of Cut | Overall Length | Price Each | | | |
|-------------|------------|---------------|----------------|--------------|---------------|--------------|---------------|
| | | | | List No. 241 | List No. 241U | List No. 242 | List No. 242U |
| 1/8 | 3/8 | 3/8 | 3-1/16 | 19.80 | 22.60 | 24.16 | 29.90 |
| 5/32 | 3/8 | 7/16 | 3-1/8 | 20.60 | 23.50 | 26.57 | 31.00 |
| 3/16 | 3/8 | 1/2 | 3-1/4 | 19.80 | 22.60 | 24.16 | 29.90 |
| 7/32 | 3/8 | 9/16 | 3-1/4 | 20.60 | 23.50 | 26.57 | 31.00 |
| 15/64 | 3/8 | 5/8 | 3-3/8 | 20.39 | — | — | — |
| 1/4 | 3/8 | 5/8 | 3-3/8 | 19.80 | 22.60 | 24.16 | 29.90 |
| 9/32 | 3/8 | 11/16 | 3-3/8 | 20.60 | 23.50 | 26.57 | 31.00 |
| 19/64 | 3/8 | 3/4 | 3-1/2 | 20.39 | — | — | — |
| 5/16 | 3/8 | 3/4 | 3-1/2 | 19.80 | 22.60 | 24.16 | 29.90 |
| 21/64 | 3/8 | 3/4 | 3-1/2 | 20.81 | — | — | — |
| 11/32 | 3/8 | 3/4 | 3-1/2 | 20.60 | 23.50 | 26.57 | 31.00 |
| 3/8 | 3/8 | 3/4 | 3-1/2 | 19.80 | 22.60 | 24.16 | 29.90 |
| 13/32 | 1/2 | 1 | 4-1/8 | 27.80 | 35.25 | 35.03 | 31.00 |
| 7/16 | 1/2 | 1 | 4-1/8 | 29.40 | 33.56 | 36.46 | 46.00 |
| 15/32 | 1/2 | 1 | 4-1/8 | 30.60 | 34.95 | 36.72 | 46.00 |
| 1/2 | 1/2 | 1 | 4-1/8 | 29.80 | 34.00 | 34.57 | 44.95 |
| 17/32 | 5/8 | 1-3/8 | 5 | 41.61 | — | — | — |
| 9/16 | 5/8 | 1-3/8 | 5 | 40.40 | 46.99 | 47.27 | 62.60 |
| 5/8 | 5/8 | 1-3/8 | 5 | 39.80 | 46.99 | 46.57 | 62.60 |
| 21/32 | 3/4 | 1-5/8 | 5-5/8 | 52.53 | — | — | — |
| 11/16 | 3/4 | 1-5/8 | 5-5/8 | 51.00 | 59.35 | 59.16 | 78.90 |
| 23/32 | 3/4 | 1-5/8 | 5-5/8 | 53.56 | — | — | — |
| 3/4 | 3/4 | 1-5/8 | 5-5/8 | 52.00 | 60.48 | 60.84 | 78.90 |
| 13/16 | 7/8 | 1-7/8 | 6-1/8 | 65.00 | 74.50 | 76.70 | 100.90 |
| 27/32 | 7/8 | 1-7/8 | 6-1/8 | 65.92 | — | — | — |
| 7/8 | 7/8 | 1-7/8 | 6-1/8 | 64.00 | 74.45 | 75.52 | 100.90 |
| 29/32 | 1 | 1-7/8 | 6-3/8 | 80.34 | — | — | — |
| 15/16 | 1 | 1-7/8 | 6-3/8 | 69.00 | 85.70 | 82.80 | 122.80 |
| 1 | 1 | 1-7/8 | 6-3/8 | 78.00 | 90.75 | 93.60 | 122.80 |

SETS

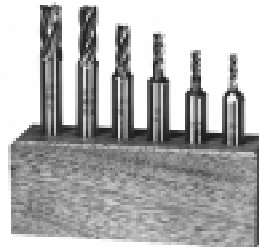


SET NO. 261A
QUALITY IMPORT
TWO FLUTE — 3/8" SHANK
6 Piece Set
Contains 1 piece of each:
1/8, 5/32, 3/16, 1/4, 5/16, 3/8
Supplied in wood block.
SET PRICE — \$117.00

SET NO. 261AU
MADE IN U.S.A.
TWO FLUTE — 3/8" SHANK
6 Piece Set
Contains 1 piece of each:
1/8, 5/32, 3/16, 1/4, 5/16, 3/8
Supplied in wood block.
SET PRICE — \$148.00

SET NO. 261B
QUALITY IMPORT
TWO FLUTE
6 Piece Set
Contains 1 piece of each:
1/8, 3/16, 1/4, 5/16, 3/8, 1/2x1/2
Supplied in wood block.
SET PRICE — \$128.00

SETS



SET NO. 241A
QUALITY IMPORT
FOUR FLUTE — 3/8" SHANK
6 Piece Set
Contains 1 piece of each:
1/8, 5/32, 3/16, 1/4, 5/16, 3/8
Supplied in wood block.
SET PRICE — \$119.00

SET NO. 241B
QUALITY IMPORT
FOUR FLUTE
6 Piece Set
Contains 1 piece of each:
1/8, 3/16, 1/4, 5/16, 3/8, 1/2x1/2
Supplied in wood block.
SET PRICE — \$128.00

SET NO. 242A
QUALITY IMPORT
FOUR FLUTE — 3/8" SHANK
CENTER CUTTING
6 Piece Set
Contains 1 piece of each:
1/8, 5/32, 3/16, 1/4, 5/16, 3/8
Supplied in wood block.
SET PRICE — \$147.00

SET NO. 242AU
MADE IN U.S.A.
FOUR FLUTE — 3/8" SHANK
CENTER CUTTING
6 Piece Set
Contains 1 piece of each:
1/8, 5/32, 3/16, 1/4, 5/16, 3/8
Supplied in wood block.
SET PRICE — \$180.00

COATED SINGLE-END END MILLS

MULTI-FLUTE

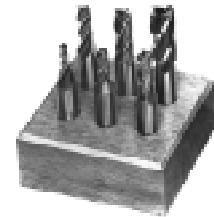
TiN Coating: *Titanium Nitride Coating* is the ideal coating for a wide range of applications, materials and cutting conditions where tool life and elevated feeds and speeds are the operating objectives. The high lubricity of TiN Coating facilitates chip flow, prevents build up, reduces cutting forces and regulates temperature. TiN Coating reduces wear and improves chip formation to extend tool life. In addition, the high hardness and low coefficient of friction of TiN reduces erosion, abrasion and corrosion.

TiAlN Coating: *Titanium Aluminum Nitride Coating* is ideal for high temperature cutting operations in many materials. When TiAlN is exposed to high cutting temperature it forms a hard aluminum oxide layer with low thermal conductivity and high chemical stability. As cutting temperatures increase, TiAlN insulates the tool and ejects heat into the chips. As a result, production levels increase with higher speeds, reduced down time and longer tool life.



- LIST NO. 205T — QUALITY IMPORT TiN COATED
- LIST NO. 205TU — MADE IN U.S.A. TiN COATED
- LIST NO. 205TAU — MADE IN U.S.A. TiAlN COATED

SETS



3/8" SHANK — MULTI-FLUTE

6 Piece Set
Contains 1 piece of each:
1/8, 3/16, 1/4, 5/16, 3/8, 1/2
Supplied in wood block.

SET NO. 205AT
Import TiN Coated
SET PRICE — \$125.00

SET NO. 205ATU
USA TiN Coated
SET PRICE — \$172.00

SET NO. 205ATAU
USA TiAlN Coated
SET PRICE — \$215.00



3/4" SHANK — MULTI-FLUTE

6 Piece Set
Contains 1 piece of each:
3/4, 7/8, 1", 1-1/8, 1-1/4, 1-1/2
Supplied in wood block.

SET NO. 205ST
Import TiN Coated
SET PRICE — \$522.30

SET NO. 205STU
USA TiN Coated
SET PRICE — \$751.00

SET NO. 205STAU
USA TiAlN Coated
SET PRICE — \$841.00

| Diameter of Cut | Shank Diameter | Length of Cut | Overall Length | No. of Flutes | Price Each | | |
|-----------------|----------------|---------------|----------------|---------------|---------------|----------------|-----------------|
| | | | | | List No. 205T | List No. 205TU | List No. 205TAU |
| 1/8 | 3/8 | 3/8 | 2-5/16 | 4 | 19.96 | 27.00 | 34.27 |
| 5/32 | 3/8 | 7/16 | 2-1/4 | 4 | 20.89 | 27.00 | 35.71 |
| 3/16 | 3/8 | 1/2 | 2-3/8 | 4 | 19.96 | 27.00 | 34.27 |
| 7/32 | 3/8 | 5/8 | 2-3/8 | 4 | 20.89 | 27.00 | 35.71 |
| 1/4 | 3/8 | 5/8 | 2-7/16 | 4 | 19.96 | 27.00 | 34.27 |
| 9/32 | 3/8 | 11/16 | 2-1/2 | 4 | 20.89 | 27.00 | 35.71 |
| 5/16 | 3/8 | 3/4 | 2-1/2 | 4 | 19.96 | 27.00 | 34.27 |
| 11/32 | 3/8 | 3/4 | 2-1/2 | 4 | 20.89 | 27.00 | 35.71 |
| 3/8 | 3/8 | 3/4 | 2-1/2 | 4 | 19.96 | 27.00 | 34.27 |
| 13/32 | 3/8 | 1 | 2-11/16 | 4 | 25.72 | 37.00 | 43.20 |
| 7/16 | 3/8 | 1 | 2-11/16 | 4 | 25.72 | 37.00 | 43.20 |
| 15/32 | 3/8 | 1 | 2-11/16 | 4 | 25.72 | 37.00 | 43.20 |
| 1/2 | 3/8 | 1 | 2-11/16 | 4 | 25.72 | 37.00 | 43.20 |
| 1/2 | 1/2 | 1-1/4 | 3-1/4 | 4 | 28.52 | 38.00 | 47.54 |
| 9/16 | 1/2 | 1-3/8 | 3-3/8 | 4 | 34.80 | 49.95 | 57.27 |
| 5/8 | 1/2 | 1-3/8 | 3-3/8 | 4 | 37.00 | 54.00 | 60.68 |
| 5/8 | 5/8 | 1-5/8 | 3-3/4 | 4 | 39.20 | 58.00 | 64.09 |
| 11/16 | 1/2 | 1-5/8 | 3-5/8 | 4 | 42.04 | 61.50 | 68.49 |
| 11/16 | 5/8 | 1-5/8 | 3-3/4 | 4 | 43.04 | 65.00 | 70.04 |
| 3/4 | 1/2 | 1-5/8 | 3-5/8 | 4 | 44.24 | 66.80 | 71.90 |
| 3/4 | 5/8 | 1-5/8 | 3-3/4 | 4 | 44.24 | 66.80 | 71.90 |
| 3/4 | 3/4 | 1-5/8 | 3-7/8 | 4 | 45.44 | 68.60 | 73.76 |
| 13/16 | 1/2 | 1-7/8 | 4 | 4 | 58.45 | 96.00 | 93.93 |
| 13/16 | 5/8 | 1-7/8 | 4 | 6 | 58.45 | 96.00 | 93.93 |
| 13/16 | 3/4 | 1-7/8 | 4-1/8 | 4 | 61.87 | 96.00 | 99.23 |
| 7/8 | 1/2 | 1-5/8 | 3-5/8 | 4 | 59.65 | 98.50 | 95.79 |
| 7/8 | 5/8 | 1-7/8 | 4 | 6 | 59.65 | 98.50 | 95.79 |
| 7/8 | 3/4 | 1-7/8 | 4-1/8 | 4 | 63.69 | 98.50 | 102.05 |
| 7/8 | 7/8 | 1-7/8 | 4-1/8 | 4 | 61.69 | 98.50 | 98.95 |
| 15/16 | 5/8 | 1-7/8 | 4 | 6 | 63.61 | 82.50 | 101.93 |
| 15/16 | 3/4 | 1-7/8 | 4-1/8 | 4 | 69.87 | 82.50 | 111.63 |
| 15/16 | 7/8 | 1-7/8 | 4-1/8 | 4 | 69.87 | 82.50 | 111.63 |
| 1 | 1/2 | 1-7/8 | 3-7/8 | 4 | 65.65 | 107.00 | 105.09 |
| 1 | 5/8 | 1-7/8 | 4 | 6 | 65.65 | 107.00 | 105.09 |
| 1 | 3/4 | 1-7/8 | 4-1/8 | 4 | 67.49 | 107.00 | 107.94 |
| 1 | 7/8 | 1-7/8 | 4-1/8 | 4 | 67.49 | 107.00 | 107.94 |
| 1 | 1 | 2 | 4-1/2 | 4 | 70.29 | 107.00 | 112.28 |
| 1-1/16 | 3/4 | 2 | 4-1/4 | 6 | 100.36 | 130.00 | 158.89 |
| 1-1/8 | 3/4 | 1-1/2 | 3-7/8 | 6 | 95.36 | 144.00 | 151.14 |
| 1-1/8 | 1 | 2 | 4-1/2 | 6 | 95.36 | 144.00 | 151.14 |
| 1-1/4 | 3/4 | 1-1/2 | 3-7/8 | 6 | 102.36 | 144.00 | 161.99 |
| 1-1/4 | 7/8 | 2 | 4-1/4 | 6 | 99.36 | 144.00 | 157.34 |
| 1-1/4 | 1 | 2 | 4-1/2 | 6 | 101.76 | 148.00 | 161.06 |
| 1-1/4 | 1-1/4 | 2 | 4-1/2 | 4 | 107.36 | 156.00 | 169.74 |
| 1-1/4 | 1-1/4 | 2 | 4-1/2 | 6 | 107.36 | 156.00 | 169.74 |
| 1-3/8 | 3/4 | 1-1/2 | 3-7/8 | 6 | 138.72 | 170.00 | 218.35 |
| 1-3/8 | 1 | 2 | 4-1/2 | 6 | 131.72 | 170.00 | 207.50 |
| 1-7/16 | 3/4 | 1-1/2 | 3-7/8 | 6 | 142.72 | 189.00 | 244.55 |
| 1-1/2 | 3/4 | 1-1/2 | 3-7/8 | 6 | 142.72 | 189.00 | 244.55 |
| 1-1/2 | 1 | 2 | 4-1/2 | 6 | 142.72 | 189.00 | 244.55 |
| 1-1/2 | 1-1/4 | 2 | 4-1/2 | 4 | 142.72 | 189.00 | 244.55 |
| 1-1/2 | 1-1/4 | 2 | 4-1/2 | 6 | 142.72 | 189.00 | 244.55 |

Sizes larger than 1-1/2 are available in both coatings upon request.

COATED SINGLE-END END MILLS

TWO FLUTE

TiN Coating: *Titanium Nitride Coating* is the ideal coating for a wide range of applications, materials and cutting conditions where tool life and elevated feeds and speeds are the operating objectives. The high lubricity of TiN Coating facilitates chip flow, prevents build up, reduces cutting forces and regulates temperature. TiN Coating reduces wear and improves chip formation to extend tool life. In addition, the high hardness and low coefficient of friction of TiN reduces erosion, abrasion and corrosion.

TiAlN Coating: *Titanium Aluminum Nitride Coating* is ideal for high temperature cutting operations in many materials. When TiAlN is exposed to high cutting temperature it forms a hard aluminum oxide layer with low thermal conductivity and high chemical stability. As cutting temperatures increase, TiAlN insulates the tool and ejects heat into the chips. As a result, production levels increase with higher speeds, reduced down time and longer tool life.



- LIST NO. 231T — QUALITY IMPORT TiN COATED
- LIST NO. 231TU — MADE IN U.S.A. TiN COATED
- LIST NO. 231TAU — MADE IN U.S.A. TiAlN COATED

SETS



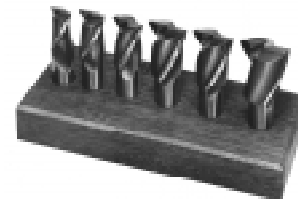
3/8" SHANK — TWO FLUTE

6 Piece Set
Contains 1 piece of each:
1/8, 3/16, 1/4, 5/16, 3/8, 1/2
Supplied in wood block.

SET NO. 231AT
Import TiN Coated
SET PRICE — \$125.00

SET NO. 231ATU
USA TiN Coated
SET PRICE — \$184.00

SET NO. 231ATAU
USA TiAlN Coated
SET PRICE — \$209.00



3/4" SHANK — TWO FLUTE

6 Piece Set
Contains 1 piece of each:
3/4, 7/8, 1", 1-1/8, 1-1/4, 1-1/2
Supplied in wood block.

SET NO. 231ST
Import TiN Coated
SET PRICE — \$475.00

SET NO. 231STU
USA TiN Coated
SET PRICE — \$665.00

SET NO. 231STAU
USA TiAlN Coated
SET PRICE — \$761.00

| Diameter of Cut | Shank Diameter | Length of Cut | Overall Length | Price Each | | |
|-----------------|----------------|---------------|----------------|---------------|----------------|-----------------|
| | | | | List No. 231T | List No. 231TU | List No. 231TAU |
| 1/8 | 3/8 | 3/8 | 2-5/16 | 19.16 | 27.00 | 32.88 |
| 5/32 | 3/8 | 3/8 | 2-1/4 | 19.16 | 27.00 | 32.88 |
| 3/16 | 3/8 | 7/16 | 2-5/16 | 19.16 | 29.00 | 32.88 |
| 7/32 | 3/8 | 1/2 | 2-1/4 | 19.16 | 29.00 | 32.88 |
| 1/4 | 3/8 | 1/2 | 2-5/16 | 19.16 | 29.00 | 32.88 |
| 9/32 | 3/8 | 9/16 | 2-1/4 | 19.16 | 29.00 | 32.88 |
| 5/16 | 3/8 | 9/16 | 2-5/16 | 19.16 | 29.00 | 32.88 |
| 11/32 | 3/8 | 9/16 | 2-1/4 | 19.16 | 29.00 | 32.88 |
| 3/8 | 3/8 | 9/16 | 2-5/16 | 19.16 | 29.00 | 32.88 |
| 13/32 | 3/8 | 13/16 | 2-1/2 | 25.56 | 38.70 | 42.80 |
| 7/16 | 3/8 | 13/16 | 2-1/2 | 25.56 | 38.70 | 42.80 |
| 15/32 | 3/8 | 13/16 | 2-1/2 | 25.56 | 41.50 | 42.80 |
| 1/2 | 3/8 | 13/16 | 2-1/2 | 26.52 | 41.50 | 44.28 |
| 1/2 | 1/2 | 1 | 3 | 27.72 | 41.50 | 46.14 |
| 9/16 | 1/2 | 1-1/8 | 3-1/8 | 34.68 | 50.50 | 56.93 |
| 5/8 | 1/2 | 1-1/8 | 3-1/8 | 37.64 | 54.60 | 61.52 |
| 5/8 | 5/8 | 1-5/16 | 3-7/16 | 38.00 | 57.30 | 62.08 |
| 11/16 | 1/2 | 1-5/16 | 3-5/16 | 41.84 | 59.90 | 68.03 |
| 11/16 | 5/8 | 1-5/16 | 3-7/16 | 41.84 | 59.90 | 68.03 |
| 3/4 | 1/2 | 1-5/16 | 3-5/16 | 43.84 | 60.30 | 71.13 |
| 3/4 | 5/8 | 1-5/16 | 3-7/16 | 43.84 | 62.40 | 71.13 |
| 3/4 | 3/4 | 1-5/16 | 3-9/16 | 43.84 | 65.90 | 71.13 |
| 13/16 | 1/2 | 1-1/2 | 3-1/2 | 43.84 | 70.90 | 71.13 |
| 13/16 | 5/8 | 1-1/2 | 3-5/8 | 54.84 | 70.90 | 88.18 |
| 13/16 | 3/4 | 1-1/2 | 3-3/4 | 54.84 | 70.90 | 88.18 |
| 7/8 | 1/2 | 1-1/2 | 3-1/2 | 54.84 | 70.90 | 88.18 |
| 7/8 | 5/8 | 1-1/2 | 3-5/8 | 54.84 | 70.90 | 88.18 |
| 7/8 | 3/4 | 1-1/2 | 3-3/4 | 54.84 | 74.00 | 88.18 |
| 7/8 | 7/8 | 1-1/2 | 3-3/4 | 56.64 | 76.90 | 90.97 |
| 15/16 | 5/8 | 1-1/2 | 3-3/4 | 61.84 | 82.50 | 99.03 |
| 15/16 | 3/4 | 1-1/2 | 3-3/4 | 61.84 | 82.50 | 99.03 |
| 15/16 | 7/8 | 1-1/2 | 3-3/4 | 61.84 | 82.50 | 99.03 |
| 1 | 1/2 | 1-1/2 | 3-5/8 | 61.84 | 84.00 | 99.03 |
| 1 | 5/8 | 1-1/2 | 3-5/8 | 61.84 | 84.00 | 99.03 |
| 1 | 3/4 | 1-1/2 | 3-3/4 | 61.84 | 84.00 | 99.03 |
| 1 | 7/8 | 1-1/2 | 3-3/4 | 61.84 | 93.50 | 99.03 |
| 1 | 1 | 1-5/8 | 4-1/8 | 67.48 | 103.00 | 107.77 |
| 1-1/16 | 3/4 | 1-5/8 | 3-7/8 | 85.60 | 115.00 | 135.86 |
| 1-1/8 | 3/4 | 1-5/8 | 3-7/8 | 85.60 | 119.80 | 135.86 |
| 1-1/8 | 7/8 | 1-5/8 | 3-7/8 | 91.00 | 128.90 | 144.23 |
| 1-1/8 | 1 | 1-5/8 | 4-1/8 | 96.16 | 134.60 | 152.23 |
| 1-1/4 | 3/4 | 1-5/8 | 3-7/8 | 102.40 | 149.00 | 161.90 |
| 1-1/4 | 1 | 1-5/8 | 4-1/8 | 104.16 | 144.00 | 164.63 |
| 1-3/8 | 3/4 | 1-5/8 | 3-7/8 | 130.08 | 160.00 | 204.80 |
| 1-3/8 | 1 | 1-5/8 | 4-1/8 | 133.92 | 172.00 | 210.75 |
| 1-1/2 | 3/4 | 1-5/8 | 3-7/8 | 130.28 | 181.00 | 205.11 |
| 1-1/2 | 1 | 1-5/8 | 4-1/8 | 142.72 | 211.00 | 224.39 |
| 1-1/2 | 1-1/4 | 1-5/8 | 4-1/8 | 142.72 | 211.00 | 224.39 |

Sizes larger than 1-1/2 are available in both coatings upon request.

COATED DOUBLE-END END MILLS

REGULAR LENGTH — TWO FLUTE

- LIST NO. 261T — QUALITY IMPORT TlN COATED
- LIST NO. 261TU — MADE IN U.S.A. TlN COATED
- LIST NO. 261TAU — MADE IN U.S.A. TlAIN COATED



| Dia. of Cut | Shank Dia. | Length of Cut | Overall Length | Price Each | | |
|-------------|------------|---------------|----------------|---------------|----------------|-----------------|
| | | | | List No. 261T | List No. 261TU | List No. 261TAU |
| 1/8 | 3/8 | 3/8 | 3-1/16 | 33.48 | 41.50 | 56.54 |
| 5/32 | 3/8 | 7/16 | 3-1/8 | 33.88 | 41.50 | 57.16 |
| 3/16 | 3/8 | 7/16 | 3-1/8 | 33.08 | 41.50 | 55.92 |
| 7/32 | 3/8 | 1/2 | 3-1/8 | 33.88 | 42.50 | 57.16 |
| 1/4 | 3/8 | 1/2 | 3-1/8 | 33.08 | 41.50 | 55.92 |
| 9/32 | 3/8 | 9/16 | 3-1/8 | 33.88 | 42.50 | 57.16 |
| 5/16 | 3/8 | 9/16 | 3-1/8 | 33.08 | 41.50 | 55.92 |
| 11/32 | 3/8 | 9/16 | 3-1/8 | 33.88 | 42.50 | 57.16 |
| 3/8 | 3/8 | 9/16 | 3-1/8 | 33.08 | 41.50 | 55.92 |
| 13/32 | 1/2 | 13/16 | 3-3/4 | 50.17 | 65.00 | 82.41 |
| 7/16 | 1/2 | 13/16 | 3-3/4 | 48.17 | 63.30 | 79.31 |
| 15/32 | 1/2 | 13/16 | 3-3/4 | 50.17 | 66.80 | 82.41 |
| 1/2 | 1/2 | 13/16 | 3-3/4 | 50.17 | 62.50 | 82.41 |
| 9/16 | 5/8 | 1-1/8 | 4-1/2 | 63.33 | 89.90 | 102.81 |
| 5/8 | 5/8 | 1-1/8 | 4-1/2 | 63.33 | 84.10 | 102.81 |
| 11/16 | 3/4 | 1-5/16 | 5 | 77.01 | 124.02 | 124.02 |
| 3/4 | 3/4 | 1-5/16 | 5 | 77.01 | 109.00 | 124.02 |
| 13/16 | 7/8 | 1-9/16 | 5-1/2 | 94.08 | 129.00 | 150.47 |
| 7/8 | 7/8 | 1-9/16 | 5-1/2 | 94.48 | 133.00 | 151.09 |
| 15/16 | 1 | 1-5/8 | 5-7/8 | 112.69 | 150.00 | 179.32 |
| 1 | 1 | 1-5/8 | 5-7/8 | 112.69 | 165.00 | 179.32 |

SETS

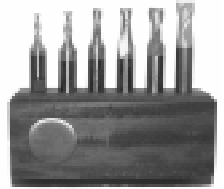
3/8" SHANK—TWO-FLUTE

6 Piece Set — DOUBLE END
Contains 1 piece of each:
1/8, 5/32, 3/16, 1/4, 5/16, 3/8
Supplied in wood block.

SET NO. 261AT
Import TlN Coated
SET PRICE — \$199.20

SET NO. 261ATU
USA TlN Coated
SET PRICE — \$249.00

SET NO. 261ATAU
USA TlAIN Coated
SET PRICE — \$337.00



FOUR FLUTE

- LIST NO. 241T — QUALITY IMPORT TlN COATED
- LIST NO. 241TU — MADE IN U.S.A. TlN COATED
- LIST NO. 241TAU — MADE IN U.S.A. TlAIN COATED



| Dia. of Cut | Shank Dia. | Length of Cut | Overall Length | Price Each | | |
|-------------|------------|---------------|----------------|---------------|----------------|-----------------|
| | | | | List No. 241T | List No. 241TU | List No. 241TAU |
| 1/8 | 3/8 | 3/8 | 3-1/16 | 33.48 | 41.50 | 56.54 |
| 5/32 | 3/8 | 7/16 | 3-1/8 | 34.28 | 42.50 | 57.78 |
| 3/16 | 3/8 | 1/2 | 3-1/4 | 33.48 | 41.50 | 56.54 |
| 7/32 | 3/8 | 9/16 | 3-1/4 | 34.28 | 42.50 | 57.78 |
| 1/4 | 3/8 | 5/8 | 3-3/8 | 33.48 | 41.50 | 56.54 |
| 9/32 | 3/8 | 11/16 | 3-3/8 | 34.28 | 42.50 | 57.78 |
| 5/16 | 3/8 | 3/4 | 3-1/2 | 33.48 | 41.50 | 56.54 |
| 11/32 | 3/8 | 3/4 | 3-1/2 | 34.28 | 42.50 | 57.78 |
| 3/8 | 3/8 | 3/4 | 3-1/2 | 33.48 | 41.50 | 56.54 |
| 13/32 | 1/2 | 1 | 4-1/8 | 47.37 | 63.00 | 78.07 |
| 7/16 | 1/2 | 1 | 4-1/8 | 48.97 | 61.50 | 80.55 |
| 15/32 | 1/2 | 1 | 4-1/8 | 50.17 | 63.17 | 82.41 |
| 1/2 | 1/2 | 1 | 4-1/8 | 49.37 | 61.37 | 81.17 |
| 9/16 | 5/8 | 1-3/8 | 5 | 63.33 | 86.33 | 102.81 |
| 5/8 | 5/8 | 1-3/8 | 5 | 62.73 | 89.73 | 101.88 |
| 11/16 | 3/4 | 1-5/8 | 5-5/8 | 78.01 | 112.00 | 125.57 |
| 3/4 | 3/4 | 1-5/8 | 5-5/8 | 79.01 | 112.00 | 127.12 |
| 13/16 | 7/8 | 1-7/8 | 6-1/8 | 95.48 | 136.48 | 152.64 |
| 7/8 | 7/8 | 1-7/8 | 6-1/8 | 94.48 | 137.00 | 151.09 |
| 15/16 | 1 | 1-7/8 | 6-3/8 | 103.69 | 163.00 | 165.37 |
| 1 | 1 | 1-7/8 | 6-3/8 | 112.69 | 163.00 | 179.32 |

SETS

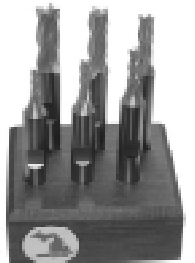
3/8" SHANK—FOUR-FLUTE

6 Piece Set — DOUBLE END
Contains 1 piece of each:
1/8, 5/32, 3/16, 1/4, 5/16, 3/8
Supplied in wood block.

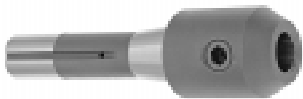
SET NO. 241AT
Import TlN Coated
SET PRICE — \$199.70

SET NO. 241ATU
USA TlN Coated
SET PRICE — \$249.00

SET NO. 241ATAU
USA TlAIN Coated
SET PRICE — \$340.00



◆ END MILL HOLDERS



These End Mill Holders are made of alloy forged steel for a more durable service life.



| R-8 END MILL ADAPTERS | | | |
|-----------------------|---------------|----------|------------|
| Shank | Hole Diameter | Tool No. | Price Each |
| R8 | 3/16 | R8E316 | 36.50 |
| R8 | 3/8 | R8E38 | 36.50 |
| R8 | 1/2 | R8E12 | 37.00 |
| R8 | 5/8 | R8E58 | 39.00 |
| R8 | 3/4 | R8E34 | 42.00 |
| R8 | 7/8 | R8E78 | 46.00 |
| R8 | 1 | R8E1 | 46.00 |
| R8 | 1-1/4 | R8E114 | 60.75 |
| R8 | 1-1/2 | R8E112 | 69.50 |

R-8 END MILL ADAPTER SET SET NO. R8EM
6 Piece Set
Contains 1 piece of each:
3/16, 3/8, 1/2, 5/8, 3/4, 1"
Supplied in wood block.
SET PRICE — \$229.00

| END MILL HOLDERS | | | | | | |
|------------------|--------------|------------|--------------|------------|--------------|------------|
| Hole Dia. | No. 30 Taper | | No. 40 Taper | | No. 50 Taper | |
| | Tool No. | Price Each | Tool No. | Price Each | Tool No. | Price Each |
| 3/16 | H30316 | 49.00 | H40316 | 57.00 | — | — |
| 3/8 | H3038 | 49.00 | H4038 | 57.00 | H5038 | 88.00 |
| 1/2 | H3012 | 49.00 | H4012 | 57.00 | H5012 | 88.00 |
| 5/8 | H3058 | 49.00 | H4058 | 57.00 | H5058 | 88.00 |
| 3/4 | H3034 | 55.00 | H4034 | 57.00 | H5034 | 88.00 |
| 7/8 | H3078 | 60.00 | H4078 | 65.00 | H5078 | 98.00 |
| 1 | H301 | 60.00 | H401 | 65.00 | H501 | 98.00 |
| 1-1/4 | — | — | H40114 | 69.00 | H50114 | 98.00 |
| 1-1/2 | — | — | H40112 | 78.00 | H50112 | 150.00 |
| 2 | — | — | — | — | H502 | 160.00 |
| 2-1/2 | — | — | — | — | H50212 | 180.00 |

MINIATURE DOUBLE-END END MILLS

REGULAR LENGTH — 3/16" SHANK

2-1/4" OVERALL LENGTH

● LIST NO. 265 — TWO FLUTE

● LIST NO. 245 — FOUR FLUTE



| Diameter of Cut | Two Flute List No. 265 | | Four Flute List No. 245 | |
|-----------------|---------------------------|------------|----------------------------|------------|
| | Length of Cut | Price Each | Length of Cut | Price Each |
| 1/32 | 1/8 | 19.45 | — | — |
| 3/64 | 9/64 | 19.45 | — | — |
| 1/16 | 3/16 | 18.15 | 3/16 | 16.95 |
| 5/64 | 15/64 | 18.15 | 15/64 | 16.95 |
| 3/32 | 9/32 | 17.40 | 9/32 | 16.95 |
| 7/64 | 21/64 | 17.40 | 21/64 | 16.95 |
| 1/8 | 3/8 | 17.40 | 3/8 | 16.95 |
| 9/64 | 13/32 | 17.40 | 13/32 | 16.95 |
| 5/32 | 7/16 | 17.40 | 7/16 | 16.95 |
| 11/64 | 1/2 | 17.40 | 1/2 | 16.95 |
| 3/16 | 1/2 | 17.40 | 1/2 | 16.95 |

SET NO. 265A

TWO FLUTE

3/16" SHANKS

5 Piece Set

Contains 1 piece of each:

1/16, 3/32, 1/8, 5/32, 3/16

Supplied in wood block.

SET PRICE — \$87.50

SET NO. 245A

FOUR FLUTE

3/16" SHANKS

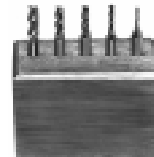
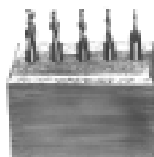
5 Piece Set

Contains 1 piece of each:

1/16, 3/32, 1/8, 5/32, 3/16

Supplied in wood block.

SET PRICE — \$84.50



LONG LENGTH — 3/16" SHANK

● LIST NO. 266 — TWO FLUTE



● LIST NO. 246 — FOUR FLUTE



STUB LENGTH — 3/16" SHANK

● LIST NO. 266S — TWO FLUTE



● LIST NO. 246S — FOUR FLUTE



| Diameter of Cut | Length of Cut | Overall Length | Price Each | |
|-----------------|---------------|----------------|---------------------------|----------------------------|
| | | | Two Flute List No. 266 | Four Flute List No. 246 |
| 1/16 | 7/32 | 2-1/2 | 21.60 | 21.90 |
| 5/64 | 7/32 | 2-1/2 | 21.60 | 21.90 |
| 3/32 | 9/32 | 2-5/8 | 21.60 | 21.90 |
| 1/8 | 3/4 | 3-1/8 | 21.60 | 21.90 |
| 9/64 | 3/4 | 3-1/8 | 21.60 | 21.90 |
| 5/32 | 7/8 | 3-1/4 | 21.60 | 21.90 |
| 3/16 | 1 | 3-3/8 | 21.60 | 21.90 |

| Diameter of Cut | Length of Cut | Overall Length | Price Each | |
|-----------------|---------------|----------------|----------------------------|-----------------------------|
| | | | Two Flute List No. 266S | Four Flute List No. 246S |
| 1/32 | 3/64 | 2 | 18.05 | — |
| 1/16 | 3/32 | 2 | 15.85 | 16.05 |
| 5/64 | 1/8 | 2 | 15.85 | 16.05 |
| 3/32 | 9/64 | 2 | 15.60 | 16.05 |
| 7/64 | 5/32 | 2 | 15.60 | — |
| 1/8 | 3/16 | 2 | 15.60 | 16.05 |
| 9/64 | 7/32 | 2 | 15.60 | 16.05 |
| 5/32 | 15/64 | 2 | 15.60 | 16.05 |
| 11/64 | 1/4 | 2 | 15.60 | 16.05 |
| 3/16 | 9/32 | 2 | 15.60 | 16.05 |

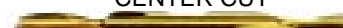
MINIATURE *Cobalt* DOUBLE-END END MILLS

REGULAR LENGTH — 3/16" SHANK

2-1/4" OVERALL LENGTH

● LIST NO. 265C — TWO FLUTE

● LIST NO. 245C — FOUR FLUTE,
CENTER CUT



| Diameter of Cut | Two Flute List No. 265C | | Four Flute List No. 245C | |
|-----------------|----------------------------|------------|-----------------------------|------------|
| | Length of Cut | Price Each | Length of Cut | Price Each |
| 1/32 | 1/8 | 29.90 | — | — |
| 3/64 | 9/64 | 29.90 | — | — |
| 1/16 | 3/16 | 29.90 | 3/16 | 29.90 |
| 5/64 | 15/64 | 29.90 | 15/64 | 29.90 |
| 3/32 | 9/32 | 29.90 | 9/32 | 29.90 |
| 7/64 | 21/64 | 29.90 | 21/64 | 29.90 |
| 1/8 | 3/8 | 29.90 | 3/8 | 29.90 |
| 9/64 | 13/32 | 29.90 | 13/32 | 29.90 |
| 5/32 | 7/16 | 29.90 | 7/16 | 29.90 |
| 11/64 | 1/2 | 29.90 | 1/2 | 29.90 |
| 3/16 | 1/2 | 29.90 | 1/2 | 29.90 |

SET NO. 265CA

COBALT

3/16" SHANKS

5 Piece Set

Contains 1 piece of each:

1/16, 3/32, 1/8, 5/32, 3/16

Supplied in wood block.

SET PRICE — \$149.00

SET NO. 245CA

COBALT

3/16" SHANKS

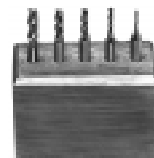
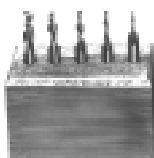
5 Piece Set

Contains 1 piece of each:

1/16, 3/32, 1/8, 5/32, 3/16

Supplied in wood block.

SET PRICE — \$149.00

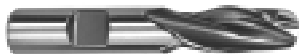


HIGH SPEED STEEL

BALL-END END MILLS

TWO FLUTE, REGULAR LENGTH

- ▶ LIST NO. 291 — QUALITY IMPORT
- LIST NO. 291U — MADE IN U.S.A.

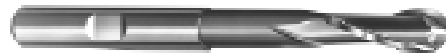


| Diameter of Cut | Shank Diameter | Two Flute Regular Length | | | |
|-----------------|----------------|--------------------------|----------------|--------------|---------------|
| | | Length of Cut | Overall Length | Price Each | |
| | | | | List No. 291 | List No. 291U |
| 1/8 | 3/8 | 3/8 | 2-5/16 | 20.40 | 23.00 |
| 3/16 | 3/8 | 1/2 | 2-3/8 | 20.40 | 23.00 |
| 1/4 | 3/8 | 5/8 | 2-7/16 | 20.40 | 23.00 |
| 5/16 | 3/8 | 3/4 | 2-1/2 | 23.00 | 26.00 |
| 3/8 | 3/8 | 3/4 | 2-1/2 | 23.00 | 26.00 |
| 7/16 | 1/2 | 1 | 3 | 30.20 | 34.12 |
| 1/2 | 1/2 | 1 | 3 | 30.20 | 34.12 |
| 9/16 | 1/2 | 1-1/8 | 3-1/8 | 39.00 | 44.50 |
| 5/8 | 1/2 | 1-1/8 | 3-1/8 | 45.00 | 50.85 |
| 5/8 | 5/8 | 1-3/8 | 3-1/2 | 45.00 | 50.85 |
| 3/4 | 1/2 | 1-5/16 | 3-5/16 | 53.00 | 59.50 |
| 3/4 | 3/4 | 1-5/8 | 3-7/8 | 53.00 | 59.50 |
| 7/8 | 7/8 | 2 | 4-1/4 | 68.00 | 76.85 |
| 1 | 1 | 2-1/4 | 4-3/4 | 85.00 | 96.00 |
| 1-1/8 | 1 | 2-1/4 | 4-3/4 | 100.00 | 129.00 |
| 1-1/4 | 1-1/4 | 2-1/2 | 5 | 116.00 | 131.00 |
| 1-3/8 | 1-1/4 | 2-1/2 | 5 | 130.20 | 142.00 |
| 1-1/2 | 1-1/4 | 2-1/2 | 5 | 142.00 | 160.50 |
| 2 | 1-1/4 | 2-1/2 | 5 | 229.00 | 257.50 |

SINGLE END

TWO FLUTE, EXTENSION TYPE

- ▶ LIST NO. 293 — QUALITY IMPORT
- LIST NO. 293U — MADE IN U.S.A.



| Diameter of Cut | Shank Diameter | Two Flute Extension | | | |
|-----------------|----------------|---------------------|----------------|--------------|---------------|
| | | Length of Cut | Overall Length | Price Each | |
| | | | | List No. 293 | List No. 293U |
| 1/8 | 3/8 | 3/8 | 2-3/8 | 24.72 | 34.50 |
| 3/16 | 3/8 | 1/2 | 2-11/16 | 24.72 | 34.50 |
| 1/4 | 3/8 | 5/8 | 3-1/16 | 25.75 | 34.50 |
| 5/16 | 3/8 | 3/4 | 3-5/16 | 30.43 | 37.70 |
| 3/8 | 3/8 | 3/4 | 3-5/16 | 29.66 | 37.70 |
| 7/16 | 1/2 | 1 | 3 | — | 49.60 |
| 1/2 | 1/2 | 1 | 4 | 39.90 | 46.20 |
| 5/8 | 5/8 | 1-3/8 | 4-5/8 | 54.40 | 75.00 |
| 3/4 | 3/4 | 1-5/8 | 5-3/8 | 66.50 | 91.00 |
| 7/8 | 7/8 | 2 | 6 | 80.70 | 92.20 |
| 1 | 1 | 2-1/2 | 7-1/4 | 106.00 | 145.00 |
| 1-1/4 | 1-1/4 | 3 | 7-1/4 | 133.50 | 165.00 |

SETS

2 Flute - Ball End
6 Piece Set
Contains 1 piece of each:
1/8, 3/16, 1/4,
5/16, 3/8, 1/2
Supplied in wood block.

SET NO. 291AS
QUALITY IMPORT
SET PRICE — \$137.40

SET NO. 291AUS
MADE IN USA
SET PRICE — \$155.12

CENTER CUTTING

FOUR FLUTE, REGULAR LENGTH

- LIST NO. 294 — QUALITY IMPORT



| Diameter of Cut | Shank Diameter | Four Flute Regular Length | | |
|-----------------|----------------|---------------------------|----------------|------------|
| | | Length of Cut | Overall Length | Price Each |
| 1/4 | 3/8 | 5/8 | 2-7/16 | 31.00 |
| 5/16 | 3/8 | 3/4 | 2-1/2 | 31.00 |
| 3/8 | 3/8 | 3/4 | 2-1/2 | 31.00 |
| 7/16 | 1/2 | 1-1/4 | 3-1/4 | 34.50 |
| 1/2 | 1/2 | 1-1/4 | 3-1/4 | 36.00 |
| 5/8 | 5/8 | 1-5/8 | 3-3/4 | 54.00 |
| 3/4 | 3/4 | 1-5/8 | 3-7/8 | 63.00 |
| 7/8 | 7/8 | 1-7/8 | 4-1/8 | 88.00 |
| 1 | 1 | 2 | 4-1/2 | 104.00 |
| 1-1/4* | 1-1/4 | 2 | 4-1/2 | 124.00 |
| 1-1/2* | 1-1/4 | 2 | 4-1/2 | 170.00 |

* 6 Flutes

CENTER CUTTING

FOUR FLUTE, LONG LENGTH

- LIST NO. 294L — QUALITY IMPORT



| Diameter of Cut | Shank Diameter | Four Flute Long Length | | |
|-----------------|----------------|------------------------|----------------|------------|
| | | Length of Cut | Overall Length | Price Each |
| 1/4 | 3/8 | 1-1/4 | 3-1/16 | 36.27 |
| 5/16 | 3/8 | 1-3/8 | 3-1/8 | 36.27 |
| 3/8 | 3/8 | 1-1/2 | 3-1/4 | 37.80 |
| 1/2 | 1/2 | 2 | 4 | 50.00 |
| 5/8 | 5/8 | 2-1/2 | 4-5/8 | 66.60 |
| 3/4 | 3/4 | 3 | 5-1/4 | 76.00 |
| 1 | 1 | 4 | 6-1/2 | 126.60 |
| 1-1/4* | 1-1/4 | 4 | 6-1/2 | 150.80 |
| 1-1/2* | 1-1/4 | 4 | 6-1/2 | 206.60 |

* 6 Flutes

HIGH SPEED STEEL

BALL-END END MILLS

REGULAR LENGTH, 3/16" SHANK

- LIST NO. 268 — TWO FLUTE, MINIATURE



LONG LENGTH, 3/16" SHANK

- LIST NO. 269 — TWO FLUTE, MINIATURE
(Not Pictured)

| Dia. of Cut | Shank Dia. | Regular Length List No. 268 | | | Long Length List No. 269 | | |
|-------------|------------|--------------------------------|----------------|------------|-----------------------------|----------------|------------|
| | | Length of Cut | Overall Length | Price Each | Length of Cut | Overall Length | Price Each |
| 1/32 | 3/16 | 1/8 | 2-1/4 | 28.50 | — | — | — |
| 3/64 | 3/16 | 9/64 | 2-1/4 | 28.50 | — | — | — |
| 1/16 | 3/16 | 3/16 | 2-1/4 | 28.60 | 7/32 | 2-1/2 | 35.30 |
| 5/64 | 3/16 | 15/64 | 2-1/4 | 26.45 | — | — | — |
| 3/32 | 3/16 | 9/32 | 2-1/4 | 26.45 | 9/32 | 2-5/8 | 33.85 |
| 7/64 | 3/16 | 21/64 | 2-1/4 | 26.45 | — | — | — |
| 1/8 | 3/16 | 3/8 | 2-1/4 | 26.45 | 3/4 | 3-1/8 | 33.85 |
| 9/64 | 3/16 | 13/32 | 2-1/4 | 26.45 | — | — | — |
| 5/32 | 3/16 | 7/16 | 2-1/4 | 26.45 | 7/8 | 3-1/4 | 33.85 |
| 11/64 | 3/16 | 1/2 | 2-1/4 | 26.45 | — | — | — |
| 3/16 | 3/16 | 1/2 | 2-1/4 | 26.85 | 1 | 3-3/8 | 33.85 |

DOUBLE END

REGULAR LENGTH

- LIST NO. 292 — TWO FLUTE



| Diameter of Cut | Shank Diameter | Flute Length | Overall Length | Price Each |
|-----------------|----------------|--------------|----------------|------------|
| 1/8 | 3/8 | 3/8 | 3-1/16 | 33.00 |
| 5/32 | 3/8 | 7/16 | 3-1/8 | 34.20 |
| 3/16 | 3/8 | 7/16 | 3-1/8 | 33.00 |
| 7/32 | 3/8 | 1/2 | 3-1/8 | 34.20 |
| 1/4 | 3/8 | 1/2 | 3-1/8 | 33.00 |
| 9/32 | 3/8 | 9/16 | 3-1/8 | 34.20 |
| 5/16 | 3/8 | 9/16 | 3-1/8 | 33.00 |
| 11/32 | 3/8 | 9/16 | 3-1/8 | 34.20 |
| 3/8 | 3/8 | 9/16 | 3-1/8 | 33.00 |
| 7/16 | 1/2 | 13/16 | 3-3/4 | 46.00 |
| 1/2 | 1/2 | 13/16 | 3-3/4 | 46.00 |
| 9/16 | 1/2 | 1-1/8 | 3-1/8 | 55.00 |
| 5/8 | 5/8 | 1-1/8 | 4-1/2 | 64.00 |
| 3/4 | 3/4 | 1-5/16 | 5 | 80.00 |
| 7/8 | 7/8 | 1-9/16 | 5-1/2 | 98.52 |
| 1 | 1 | 1-5/8 | 5-7/8 | 122.00 |

M-42 COBALT END MILLS

SINGLE END



● LIST NO. 231C — TWO FLUTE, REGULAR LENGTH

| Diameter of Cut | Shank Diameter | Length of Cut | Overall Length | Price Each |
|-----------------|----------------|---------------|----------------|------------|
| 1/8 | 3/8 | 3/8 | 2-5/16 | 21.40 |
| 5/32 | 3/8 | 3/8 | 2-5/16 | 21.40 |
| 3/16 | 3/8 | 7/16 | 2-5/16 | 21.40 |
| 7/32 | 3/8 | 1/2 | 2-5/16 | 21.40 |
| 1/4 | 3/8 | 1/2 | 2-5/16 | 21.40 |
| 9/32 | 3/8 | 9/16 | 2-5/16 | 21.40 |
| 5/16 | 3/8 | 9/16 | 2-5/16 | 21.40 |
| 11/32 | 3/8 | 9/16 | 2-5/16 | 21.40 |
| 3/8 | 3/8 | 9/16 | 2-5/16 | 21.40 |
| 13/32 | 3/8 | 13/16 | 2-1/2 | 30.20 |
| 7/16 | 3/8 | 13/16 | 2-1/2 | 30.20 |
| 15/32 | 3/8 | 13/16 | 2-1/2 | 30.20 |
| 1/2 | 3/8 | 13/16 | 2-1/2 | 30.20 |
| 1/2 | 1/2 | 1 | 3 | 30.20 |
| 9/16 | 1/2 | 1-1/8 | 3-1/8 | 41.30 |
| 5/8 | 1/2 | 1-1/8 | 3-3/8 | 40.00 |
| 5/8 | 5/8 | 1-5/16 | 3-7/16 | 40.00 |
| 11/16 | 1/2 | 1-5/16 | 3-7/16 | 50.00 |
| 11/16 | 5/8 | 1-5/16 | 3-7/16 | 50.00 |
| 3/4 | 1/2 | 1-5/16 | 3-5/8 | 50.00 |
| 3/4 | 5/8 | 1-5/16 | 3-7/16 | 50.00 |

| Diameter of Cut | Shank Diameter | Length of Cut | Overall Length | Price Each |
|-----------------|----------------|---------------|----------------|------------|
| 3/4 | 3/4 | 1-5/16 | 3-9/16 | 50.00 |
| 13/16 | 5/8 | 1-1/2 | 3-5/8 | 58.80 |
| 7/8 | 3/4 | 1-1/2 | 3-3/4 | 68.60 |
| 7/8 | 7/8 | 1-1/2 | 3-3/4 | 68.60 |
| 15/16 | 3/4 | 1-1/2 | 3-3/4 | 75.00 |
| 1 | 3/4 | 1-1/2 | 3-3/4 | 80.00 |
| 1 | 1 | 1-5/8 | 4-1/8 | 80.00 |
| 1-1/16 | 3/4 | 1-5/8 | 3-7/8 | 108.10 |
| 1-1/8 | 3/4 | 1-5/8 | 3-7/8 | 108.00 |
| 1-1/8 | 1 | 1-5/8 | 4-1/8 | 108.00 |
| 1-1/4 | 3/4 | 1-5/8 | 3-7/8 | 106.00 |
| 1-1/4 | 1 | 1-5/8 | 4-1/8 | 106.00 |
| 1-1/4 | 1-1/4 | 1-5/8 | 4-1/8 | 106.00 |
| 1-3/8 | 3/4 | 1-5/8 | 4-1/8 | 146.80 |
| 1-3/8 | 1 | 1-5/8 | 4-1/8 | 146.80 |
| 1-3/8 | 1-1/4 | 1-5/8 | 4-1/8 | 146.80 |
| 1-1/2 | 3/4 | 1-5/8 | 3-7/8 | 158.50 |
| 1-1/2 | 1 | 1-5/8 | 4-1/8 | 158.50 |
| 1-1/2 | 1-1/4 | 1-5/8 | 4-1/8 | 158.50 |
| 1-1/2 | 1-1/4 | 1-5/8 | 4-1/8 | 190.00 |
| 2 | 1-1/4 | 1-5/8 | 4-1/8 | 207.20 |

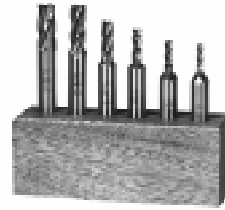
DOUBLE END

For milling abrasive, high strength thermal resistant metals recognized for great abrasive resistance and high red hardness. For higher speeds, feeds and easy resharpening.

● LIST NO. 261C — TWO FLUTE

CENTER CUTTING

● LIST NO. 241C — FOUR FLUTE



| Dia. of Cut | Shank Dia. | Length of Cut | Overall Length | Price Each |
|-------------|------------|---------------|----------------|------------|
| 1/8 | 3/8 | 3/8 | 3-1/16 | 29.89 |
| 5/32 | 3/8 | 7/16 | 3-1/8 | 31.60 |
| 3/16 | 3/8 | 7/16 | 3-1/8 | 31.60 |
| 7/32 | 3/8 | 1/2 | 3-1/8 | 31.60 |
| 1/4 | 3/8 | 1/2 | 3-1/8 | 31.60 |
| 9/32 | 3/8 | 9/16 | 3-1/8 | 32.20 |
| 5/16 | 3/8 | 9/16 | 3-1/8 | 31.60 |
| 11/32 | 3/8 | 9/16 | 3-1/8 | 34.70 |
| 3/8 | 3/8 | 9/16 | 3-1/8 | 31.60 |
| 13/32 | 1/2 | 13/16 | 3-3/4 | 42.35 |
| 7/16 | 1/2 | 13/16 | 3-3/4 | 42.35 |
| 15/32 | 1/2 | 13/16 | 3-3/4 | 46.15 |
| 1/2 | 1/2 | 13/16 | 3-3/4 | 46.15 |
| 9/16 | 5/8 | 1-1/8 | 4-1/2 | 65.00 |
| 5/8 | 5/8 | 1-1/8 | 4-1/2 | 73.68 |
| 11/16 | 3/4 | 1-5/16 | 5 | 92.60 |
| 3/4 | 3/4 | 1-5/16 | 5 | 97.50 |
| 7/8 | 7/8 | 1-9/16 | 5-1/2 | 119.00 |
| 1 | 1 | 1-5/8 | 5-7/8 | 139.50 |

TWO FLUTE DOUBLE END SET NO. 261CS

6 Piece Set
Contains 1 piece of each:
1/8, 3/16, 1/4, 5/16, 3/8, 1/2
Supplied in wood block.
SET PRICE — \$199.00

FOUR FLUTE DOUBLE END SET NO. 241CS

6 Piece Set
Contains 1 piece of each:
1/8, 3/16, 1/4, 5/16, 3/8, 1/2
Supplied in wood block.
SET PRICE — \$195.00

| Dia. of Cut | Shank Dia. | Length of Cut | Overall Length | Price Each |
|-------------|------------|---------------|----------------|------------|
| 1/8 | 3/8 | 3/8 | 3-1/16 | 29.25 |
| 5/32 | 3/8 | 7/16 | 3-1/8 | 29.25 |
| 3/16 | 3/8 | 1/2 | 3-1/4 | 29.25 |
| 7/32 | 3/8 | 9/16 | 3-1/4 | 29.25 |
| 1/4 | 3/8 | 5/8 | 3-3/8 | 29.25 |
| 9/32 | 3/8 | 11/16 | 3-3/8 | 29.25 |
| 5/16 | 3/8 | 3/4 | 3-1/2 | 29.25 |
| 11/32 | 3/8 | 3/4 | 3-1/2 | 32.00 |
| 3/8 | 3/8 | 3/4 | 3-1/2 | 29.25 |
| 13/32 | 1/2 | 1 | 4-1/8 | 41.00 |
| 7/16 | 1/2 | 1 | 4-1/8 | 41.00 |
| 15/32 | 1/2 | 1 | 4-1/8 | 45.35 |
| 1/2 | 1/2 | 1 | 4-1/8 | 45.35 |
| 9/16 | 5/8 | 1-3/8 | 5 | 61.50 |
| 5/8 | 5/8 | 1-3/8 | 5 | 72.40 |
| 11/16 | 3/4 | 1-5/8 | 5-5/8 | 91.50 |
| 3/4 | 3/4 | 1-5/8 | 5-5/8 | 96.50 |
| 7/8 | 7/8 | 1-7/8 | 6-1/8 | 119.80 |
| 1 | 1 | 1-7/8 | 6-3/8 | 145.50 |

BALL END

CENTER CUTTING

| Dia. of Cut | Shank Dia. | Two Flute Single End List No. 291C | | | Two Flute Double End List No. 292C | | | Four Flute Single End List No. 294C | | |
|-------------|------------|------------------------------------|----------------|------------|------------------------------------|----------------|------------|-------------------------------------|----------------|------------|
| | | Length of Cut | Overall Length | Price Each | Length of Cut | Overall Length | Price Each | Length of Cut | Overall Length | Price Each |
| 1/8 | 3/8 | 3/8 | 2-5/16 | 30.00 | 3/8 | 3-1/16 | 49.00 | 3/8 | 2-5/16 | 39.00 |
| 3/16 | 3/8 | 1/2 | 2-3/8 | 30.00 | 7/16 | 3-1/8 | 49.00 | 1/2 | 2-3/8 | 42.00 |
| 1/4 | 3/8 | 5/8 | 2-7/16 | 30.00 | 1/2 | 3-1/8 | 49.00 | 5/8 | 2-7/16 | 42.00 |
| 5/16 | 3/8 | 3/4 | 2-1/2 | 33.50 | 9/16 | 3-1/8 | 49.00 | 3/4 | 2-1/2 | 46.00 |
| 3/8 | 3/8 | 3/4 | 2-1/2 | 33.50 | 9/16 | 3-1/8 | 49.00 | 3/4 | 2-1/2 | 46.00 |
| 7/16 | 1/2 | 3/4 | 3 | 45.00 | 13/16 | 3-3/4 | 63.00 | 1 | 3 | 56.00 |
| 1/2 | 1/2 | 1 | 3 | 42.00 | 13/16 | 3-3/4 | 73.60 | 1-1/4 | 3-1/4 | 56.00 |
| 9/16 | 1/2 | 1-1/8 | 3-1/8 | 53.00 | 1-1/8 | 4-9/16 | 118.40 | 1-1/8 | 3-1/8 | 76.00 |
| 5/8 | 1/2 | — | — | — | 1-5/16 | 5 | 156.00 | 1-1/8 | 3-1/8 | 75.50 |
| 5/8 | 5/8 | 1-3/8 | 3-1/2 | 60.00 | — | — | — | 1-5/8 | 3-3/4 | 75.50 |
| 3/4 | 1/2 | — | — | — | — | — | — | 1-5/16 | 3-5/16 | 86.50 |
| 3/4 | 3/4 | 1-5/8 | 3-7/8 | 70.00 | — | — | — | 1-5/8 | 3-7/8 | 86.50 |
| 7/8 | 7/8 | 2 | 4-1/4 | 91.00 | — | — | — | 1-7/8 | 4-1/8 | 119.00 |
| 1 | 1 | 2-1/4 | 4-3/4 | 118.00 | — | — | — | 2 | 4-1/2 | 130.00 |
| 1-1/8 | 1 | 2-1/4 | 4-3/4 | 146.00 | — | — | — | 2 | 4-1/2 | 162.00 |
| 1-1/4 | 1-1/4 | 2-1/2 | 5 | 156.99 | — | — | — | 2 | 4-1/2 | 160.00 |
| 1-1/2 | 1-1/4 | 2-1/2 | 5 | 203.09 | — | — | — | 2 | 4-1/2 | 202.00 |

● LIST NO. 291C
TWO FLUTE, SINGLE END



● LIST NO. 292C
TWO FLUTE, DOUBLE END



● LIST NO. 294C
FOUR FLUTE, SINGLE END



U.S.A. M-42 **COBALT** END MILLS

SINGLE END CENTER CUTTING



● LIST NO. 231CU — TWO FLUTE, REGULAR LENGTH

| Dia. of Cut | Shank Dia. | Length of Cut | Overall Length | Price Each |
|-------------|------------|---------------|----------------|------------|
| 1/8 | 3/8 | 3/8 | 2-5/16 | 29.00 |
| 5/32 | 3/8 | 7/16 | 2-5/16 | 29.00 |
| 3/16 | 3/8 | 7/16 | 2-5/16 | 29.00 |
| 7/32 | 3/8 | 1/2 | 2-5/16 | 29.00 |
| 1/4 | 3/8 | 1/2 | 2-5/16 | 29.00 |
| 9/32 | 3/8 | 9/16 | 2-5/16 | 29.00 |
| 5/16 | 3/8 | 9/16 | 2-5/16 | 29.00 |
| 11/32 | 3/8 | 9/16 | 2-5/16 | 29.00 |
| 3/8 | 3/8 | 9/16 | 2-5/16 | 29.00 |
| 13/32 | 3/8 | 13/16 | 2-1/2 | 39.00 |
| 7/16 | 1/2 | 1 | 3 | 39.00 |
| 15/32 | 3/8 | 13/16 | 2-1/2 | 39.00 |
| 1/2 | 3/8 | 13/16 | 2-1/2 | 39.00 |
| 1/2 | 1/2 | 1 | 3 | 39.00 |

| Dia. of Cut | Shank Dia. | Length of Cut | Overall Length | Price Each |
|-------------|------------|---------------|----------------|------------|
| 9/16 | 1/2 | 1-1/8 | 3-1/8 | 49.00 |
| 5/8 | 1/2 | 1-1/8 | 3-3/8 | 55.00 |
| 5/8 | 5/8 | 1-5/16 | 3-7/16 | 55.00 |
| 3/4 | 1/2 | 1-5/16 | 3-5/8 | 69.00 |
| 3/4 | 5/8 | 1-5/16 | 3-7/16 | 69.00 |
| 3/4 | 3/4 | 1-5/16 | 3-9/16 | 69.00 |
| 7/8 | 3/4 | 1-1/2 | 3-3/4 | 89.00 |
| 7/8 | 7/8 | 1-1/2 | 3-3/4 | 89.00 |
| 1 | 5/8 | 1-1/2 | 4 | 110.00 |
| 1 | 3/4 | 1-1/2 | 3-3/4 | 110.00 |
| 1 | 1 | 1-5/8 | 4-1/8 | 110.00 |
| 1-1/4 | 1-1/4 | 1-5/8 | 4-1/8 | 139.00 |
| 1-1/2 | 1-1/4 | 1-5/8 | 4-1/8 | 199.00 |
| 2 | 1-1/4 | 1-5/8 | 4-1/8 | 250.00 |

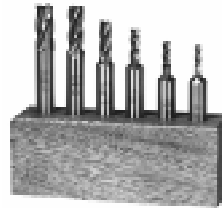
DOUBLE END CENTER CUTTING

For milling abrasive, high strength thermal resistant metals recognized for great abrasive resistance and high red hardness...for higher speeds, feeds and easy resharpening.

● LIST NO. 261CU — TWO FLUTE



| Dia. of Cut | Shank Dia. | Length of Cut | Overall Length | Price Each |
|-------------|------------|---------------|----------------|------------|
| 1/8 | 3/8 | 3/8 | 3-1/16 | 39.00 |
| 5/32 | 3/8 | 7/16 | 3-1/8 | 39.00 |
| 3/16 | 3/8 | 7/16 | 3-1/8 | 39.00 |
| 7/32 | 3/8 | 1/2 | 3-1/8 | 39.00 |
| 1/4 | 3/8 | 1/2 | 3-1/8 | 39.00 |
| 9/32 | 3/8 | 9/16 | 3-1/8 | 39.00 |
| 5/16 | 3/8 | 9/16 | 3-1/8 | 39.00 |
| 11/32 | 3/8 | 9/16 | 3-1/8 | 39.00 |
| 3/8 | 3/8 | 9/16 | 3-1/8 | 39.00 |
| 13/32 | 1/2 | 13/16 | 3-3/4 | 49.00 |
| 7/16 | 1/2 | 13/16 | 3-3/4 | 49.00 |
| 15/32 | 1/2 | 13/16 | 3-3/4 | 49.00 |
| 1/2 | 1/2 | 13/16 | 3-3/4 | 58.00 |
| 9/16 | 5/8 | 1-1/8 | 4-1/2 | 69.00 |
| 5/8 | 5/8 | 1-1/8 | 4-1/2 | 77.30 |
| 11/16 | 3/4 | 1-5/16 | 5 | 98.60 |
| 3/4 | 3/4 | 1-5/16 | 5 | 98.60 |
| 13/16 | 7/8 | 1-9/16 | 5-1/2 | 129.00 |
| 7/8 | 7/8 | 1-9/16 | 5-1/2 | 133.00 |
| 15/16 | 1 | 1-5/8 | 5-7/8 | 149.50 |
| 1 | 1 | 1-5/8 | 5-7/8 | 156.70 |



**TWO FLUTE
DOUBLE END
SET NO. 261CUS**

6 Piece Set
Contains 1 piece of each:
1/8, 3/16, 1/4, 5/16, 3/8, 1/2
Supplied in wood block.
SET PRICE — \$253.50

**FOUR FLUTE
DOUBLE END
SET NO. 241CUS**

6 Piece Set
Contains 1 piece of each:
1/8, 3/16, 1/4, 5/16, 3/8, 1/2
Supplied in wood block.
SET PRICE — \$276.00

● LIST NO. 241CU — FOUR FLUTE



| Dia. of Cut | Shank Dia. | Length of Cut | Overall Length | Price Each |
|-------------|------------|---------------|----------------|------------|
| 1/8 | 3/8 | 3/8 | 3-1/16 | 42.00 |
| 5/32 | 3/8 | 7/16 | 3-1/8 | 42.00 |
| 3/16 | 3/8 | 7/16 | 3-1/4 | 42.00 |
| 7/32 | 3/8 | 9/16 | 3-1/4 | 42.00 |
| 1/4 | 3/8 | 5/8 | 3-3/8 | 42.00 |
| 9/32 | 3/8 | 11/16 | 3-3/8 | 42.00 |
| 5/16 | 3/8 | 3/4 | 3-1/2 | 42.00 |
| 11/32 | 3/8 | 3/4 | 3-1/2 | 42.00 |
| 3/8 | 3/8 | 3/4 | 3-1/2 | 42.00 |
| 13/32 | 1/2 | 1 | 4-1/8 | 55.00 |
| 7/16 | 1/2 | 1 | 4-1/8 | 55.00 |
| 15/32 | 1/2 | 1 | 4-1/8 | 66.00 |
| 1/2 | 1/2 | 1 | 4-1/8 | 66.00 |
| 9/16 | 5/8 | 1-3/8 | 5 | 79.00 |
| 5/8 | 5/8 | 1-3/8 | 5 | 94.00 |
| 11/16 | 3/4 | 1-5/8 | 5-5/8 | 105.50 |
| 3/4 | 3/4 | 1-5/8 | 5-5/8 | 112.00 |
| 13/16 | 7/8 | 1-7/8 | 6-1/8 | 135.00 |
| 7/8 | 7/8 | 1-7/8 | 6-1/8 | 145.00 |
| 15/16 | 1 | 1-7/8 | 6-3/8 | 184.00 |
| 1 | 1 | 1-7/8 | 6-3/8 | 184.00 |

BALL END CENTER CUTTING

| Dia. of Cut | Shank Dia. | Two Flute List No. 291CU | | | Four Flute List No. 294CU | | |
|-------------|------------|-----------------------------|----------------|------------|------------------------------|----------------|------------|
| | | Length of Cut | Overall Length | Price Each | Length of Cut | Overall Length | Price Each |
| 1/8 | 3/8 | 3/8 | 2-5/16 | 36.00 | 3/8 | 2-5/16 | 54.00 |
| 3/16 | 3/8 | 1/2 | 2-3/8 | 37.00 | 1/2 | 2-3/8 | 54.00 |
| 1/4 | 3/8 | 5/8 | 2-7/16 | 37.00 | 5/8 | 2-7/16 | 54.00 |
| 5/16 | 3/8 | 3/4 | 2-1/2 | 39.00 | 3/4 | 2-1/2 | 59.00 |
| 3/8 | 3/8 | 3/4 | 2-1/2 | 41.50 | 3/4 | 2-1/2 | 59.00 |
| 7/16 | 1/2 | 3/4 | 3 | 49.00 | — | — | — |
| 1/2 | 1/2 | 1 | 3 | 58.00 | 1-1/4 | 3-1/4 | 78.00 |
| 5/8 | 5/8 | 1-3/8 | 3-1/2 | 84.00 | 1-5/8 | 3-3/4 | 96.00 |
| 3/4 | 3/4 | 1-5/8 | 3-7/8 | 98.00 | 1-5/8 | 3-7/8 | 109.00 |
| 7/8 | 3/4 | 2 | 4-1/4 | 125.00 | — | — | — |
| 1 | 1 | 2-1/4 | 4-3/4 | 145.00 | 2 | 4-1/2 | 179.00 |
| 1-1/4 | 1-1/4 | 2-1/4 | 4-3/4 | 189.00 | 2 | 4-1/2 | 199.00 |
| 1-1/2 | 1-1/4 | 2-1/2 | 5 | 250.00 | 2 | 4-1/2 | 260.00 |

● LIST NO. 291CU
TWO FLUTE, SINGLE END



● LIST NO. 294CU
FOUR FLUTE, SINGLE END



U.S.A. M-42 *Cobalt* END MILLS

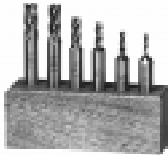
- LIST NO. 205CU
REGULAR LENGTH



- LIST NO. 206CU
LONG LENGTH



- LIST NO. 207CU
EXTRA LONG LENGTH



**FOUR FLUTE — 3/8" SHANK
SET NO. 205CAU**
6 Piece Set — REGULAR LENGTH
Contains 1 piece of each:
1/8, 3/16, 1/4, 5/16, 3/8, 1/2
Supplied in wood block.
SET PRICE — \$189.90

CENTER CUTTING — SINGLE END — MULTI-FLUTE

| Dia. of Cut | Shank Dia. | Regular Length List No. 205CU | | | | Long Length List No. 206CU | | | Extra Long Length List No. 207CU | | |
|-------------|------------|----------------------------------|--------------|----------------|------------|-------------------------------|----------------|------------|-------------------------------------|----------------|------------|
| | | No. of Flutes | Flute Length | Overall Length | Price Each | Flute Length | Overall Length | Price Each | Flute Length | Overall Length | Price Each |
| 1/8 | 3/8 | 4 | 3/8 | 2-5/16 | 29.00 | — | — | — | — | — | — |
| 3/16 | 3/8 | 4 | 1/2 | 2-3/8 | 29.00 | — | — | — | — | — | — |
| 1/4 | 3/8 | 4 | 5/8 | 2-7/16 | 29.00 | 1-1/4 | 3-1/8 | 39.50 | 1-3/4 | 3-9/16 | 47.00 |
| 5/16 | 3/8 | 4 | 3/4 | 2-1/2 | 29.00 | 1-3/8 | 3-1/8 | 39.50 | 2 | 3-3/4 | 47.00 |
| 3/8 | 3/8 | 4 | 3/4 | 2-1/2 | 29.00 | 1-1/2 | 3-1/4 | 39.50 | 2-1/2 | 4-1/4 | 47.00 |
| 7/16 | 3/8 | 4 | 1 | 2-11/16 | 42.00 | — | — | — | — | — | — |
| 1/2 | 3/8 | 4 | 1 | 2-11/16 | 44.90 | — | — | — | — | — | — |
| 1/2 | 1/2 | 4 | 1-1/4 | 3-1/4 | 44.90 | 2 | 4 | 52.50 | 3 | 5 | 62.00 |
| 9/16 | 1/2 | 4 | 1-3/8 | 3-3/8 | 55.00 | — | — | — | — | — | — |
| 5/8 | 1/2 | 4 | 1-3/8 | 3-3/8 | 65.00 | — | — | — | — | — | — |
| 5/8 | 5/8 | 4 | 1-5/8 | 3-3/4 | 65.00 | 2-1/2 | 4-5/8 | 78.00 | 4 | 6-1/8 | 97.50 |
| 3/4 | 3/4 | 4 | 1-5/8 | 3-7/8 | 79.00 | 3 | 5-1/4 | 97.00 | 4 | 6-1/4 | 115.00 |
| 7/8 | 3/4 | 4 | 1-7/8 | 4-1/8 | 105.00 | — | — | — | — | — | — |
| 7/8 | 7/8 | 4 | 1-7/8 | 4-1/8 | 105.00 | 3-1/2 | 5-3/4 | 120.00 | — | — | — |
| 1 | 1 | 4 | 2 | 4-1/2 | 125.00 | 4 | 6-1/2 | 159.00 | 6 | 8-1/2 | 195.00 |
| 1 | 1 | 6 | — | — | — | 4 | 6-1/2 | 159.00 | — | — | — |
| 1-1/8 | 3/4 | 6 | 1-1/2 | 3-7/8 | 175.00 | — | — | — | — | — | — |
| 1-1/4 | 3/4 | 6 | 1-1/2 | 3-7/8 | 160.00 | — | — | — | — | — | — |
| 1-1/4 | 1-1/4 | 4 | 2 | 4-1/2 | 160.00 | 4 | 6-1/2 | 225.00 | 6 | 8-1/2 | 235.00 |
| 1-1/4 | 1-1/4 | 6 | 2 | 4-1/2 | 160.00 | 4 | 6-1/2 | 225.00 | 6 | 8-1/2 | 275.00 |
| 1-3/8 | 3/4 | 6 | 1-1/2 | 3-7/8 | 170.00 | — | — | — | — | — | — |
| 1-1/2 | 3/4 | 6 | 1-1/2 | 3-7/8 | 210.00 | — | — | — | — | — | — |
| 1-1/2 | 1-1/4 | 4 | 2 | 4-1/2 | 210.00 | — | — | — | 6 | 10-1/2 | 350.00 |
| 1-1/2 | 1-1/4 | 6 | 2 | 4-1/2 | 210.00 | — | — | — | — | — | — |
| 1-3/4 | 1-1/4 | 6 | 2 | 4-1/2 | 390.00 | — | — | — | — | — | — |
| 2 | 1-1/4 | 6 | 2 | 4-1/2 | 450.00 | — | — | — | — | — | — |

COATED U.S.A. M-42 *Cobalt* END MILLS

CENTER CUTTING — SINGLE END — MULTI-FLUTE

- LIST NO. 205CUT — REGULAR LENGTH, TiN Coated
- LIST NO. 205CUA — REGULAR LENGTH, TiAlN
- LIST NO. 206CUT — LONG LENGTH, TiN Coated
- LIST NO. 206CUA — LONG LENGTH, TiAlN
- LIST NO. 207CUT — EXTRA LONG LENGTH, TiN Coated
- LIST NO. 207CUA — EXTRA LONG LENGTH, TiAlN



| Dia. of Cut | Shank Dia. | Regular Length | | | | | Long Length | | | | Extra Long Length | | | |
|-------------|------------|----------------|--------------|----------------|------------------|-----------------|--------------|----------------|------------------|-----------------|-------------------|----------------|------------------|-----------------|
| | | No. of Flutes | Flute Length | Overall Length | Price Each | | Flute Length | Overall Length | Price Each | | Flute Length | Overall Length | Price Each | |
| | | | | | List No. 205CUTC | List No. 205CUA | | | List No. 206CUTC | List No. 206CUA | | | List No. 207CUTC | List No. 207CUA |
| 1/8 | 3/8 | 4 | 3/8 | 2-5/16 | 39.00 | 54.60 | — | — | — | — | — | — | — | — |
| 3/16 | 3/8 | 4 | 1/2 | 2-3/8 | 39.00 | 54.60 | — | — | — | — | — | — | — | — |
| 1/4 | 3/8 | 4 | 5/8 | 2-7/16 | 39.00 | 54.60 | 1-1/4 | 3-1/8 | 50.00 | 70.00 | 1-3/4 | 3-9/16 | 60.00 | 84.00 |
| 5/16 | 3/8 | 4 | 3/4 | 2-1/2 | 39.00 | 54.60 | 1-3/8 | 3-1/8 | 50.00 | 70.00 | 2 | 3-3/4 | 60.00 | 84.00 |
| 3/8 | 3/8 | 4 | 3/4 | 2-1/2 | 39.00 | 54.60 | 1-1/2 | 3-1/4 | 50.00 | 70.00 | 2-1/2 | 4-1/4 | 60.00 | 84.00 |
| 7/16 | 3/8 | 4 | 1 | 2-11/16 | 52.00 | 72.80 | — | — | — | — | — | — | — | — |
| 1/2 | 3/8 | 4 | 1 | 2-11/16 | 60.90 | 85.26 | — | — | — | — | — | — | — | — |
| 1/2 | 1/2 | 4 | 1-1/4 | 3-1/4 | 60.90 | 85.26 | 2 | 4 | 70.50 | 98.70 | 3 | 5 | 80.00 | 112.00 |
| 9/16 | 1/2 | 4 | 1-3/8 | 3-3/8 | 71.00 | 99.40 | — | — | — | — | — | — | — | — |
| 5/8 | 1/2 | 4 | 1-3/8 | 3-3/8 | 81.00 | 113.00 | — | — | — | — | — | — | — | — |
| 5/8 | 5/8 | 4 | 1-5/8 | 3-3/4 | 81.00 | 113.00 | 2-1/2 | 4-5/8 | 103.00 | 144.20 | 4 | 6-1/8 | 127.50 | 178.50 |
| 3/4 | 3/4 | 4 | 1-5/8 | 3-7/8 | 105.00 | 147.00 | 3 | 5-1/4 | 129.00 | 180.60 | 4 | 6-1/4 | 145.00 | 203.00 |
| 7/8 | 3/4 | 4 | 1-7/8 | 4-1/8 | 131.00 | 183.40 | — | — | — | — | — | — | — | — |
| 7/8 | 7/8 | 4 | 1-7/8 | 4-1/8 | 131.00 | 183.40 | 3-1/2 | 5-3/4 | 160.00 | 224.00 | — | — | — | — |
| 1 | 1 | 4 | 2 | 4-1/2 | 151.00 | 211.00 | 4 | 6-1/2 | 204.00 | 285.60 | 6 | 8-1/2 | 255.00 | 357.00 |
| 1 | 1 | 6 | — | — | — | — | 4 | 6-1/2 | 204.00 | 285.60 | — | — | — | — |
| 1-1/8 | 3/4 | 6 | 1-1/2 | 3-7/8 | 201.00 | 281.00 | — | — | — | — | — | — | — | — |
| 1-1/4 | 3/4 | 6 | 1-1/2 | 3-7/8 | 186.00 | 260.40 | — | — | — | — | — | — | — | — |
| 1-1/4 | 1-1/4 | 4 | 2 | 4-1/2 | 186.00 | 260.40 | 4 | 6-1/2 | 285.00 | 399.00 | 6 | 8-1/2 | 347.00 | 485.80 |
| 1-1/4 | 1-1/4 | 6 | 2 | 4-1/2 | 186.00 | 260.40 | 4 | 6-1/2 | 285.00 | 399.00 | 6 | 8-1/2 | 347.00 | 485.80 |
| 1-3/8 | 3/4 | 6 | 1-1/2 | 3-7/8 | 186.00 | 260.40 | — | — | — | — | — | — | — | — |
| 1-1/2 | 3/4 | 6 | 1-1/2 | 3-7/8 | 209.00 | 292.60 | — | — | — | — | — | — | — | — |
| 1-1/2 | 1-1/4 | 4 | 2 | 4-1/2 | 249.00 | 348.60 | — | — | — | — | 6 | 10-1/2 | 386.00 | 540.40 |
| 1-1/2 | 1-1/4 | 6 | 2 | 4-1/2 | 249.00 | 348.60 | — | — | — | — | — | — | — | — |
| 1-3/4 | 1-1/4 | 6 | 2 | 4-1/2 | 429.00 | 600.00 | — | — | — | — | — | — | — | — |
| 2 | 1-1/4 | 6 | 2 | 4-1/2 | 489.00 | 684.60 | — | — | — | — | — | — | — | — |

M-42 COBALT END MILLS

CENTER CUTTING — MULTI-FLUTE

● LIST NO. 205C
REGULAR LENGTH



● LIST NO. 206C
LONG LENGTH



● LIST NO. 207C
EXTRA LONG LENGTH



**FOUR FLUTE — 3/8" SHANK
SET NO. 205CA**

6 Piece Set — REGULAR LENGTH

Contains 1 piece of each:

1/8, 3/16, 1/4, 5/16, 3/8, 1/2

Supplied in wood block.

SET PRICE — \$140.25

| Dia. of Cut | Shank Dia. | Regular Length List No. 205C | | | | Long Length List No. 206C | | | Extra Long Length List No. 207C | | |
|-------------|------------|---------------------------------|--------------|----------------|------------|------------------------------|----------------|------------|------------------------------------|----------------|------------|
| | | No. of Flutes | Flute Length | Overall Length | Price Each | Flute Length | Overall Length | Price Each | Flute Length | Overall Length | Price Each |
| 1/8 | 3/8 | 4 | 3/8 | 2-5/16 | 21.60 | — | — | — | — | — | — |
| 5/32 | 3/8 | 4 | 7/16 | 2-1/4 | 21.60 | — | — | — | — | — | — |
| 3/16 | 3/8 | 4 | 1/2 | 2-3/8 | 21.60 | — | — | — | — | — | — |
| 7/32 | 3/8 | 4 | 5/8 | 2-3/8 | 21.60 | — | — | — | — | — | — |
| 1/4 | 3/8 | 4 | 5/8 | 2-7/16 | 21.60 | 1-1/4 | 3-1/16 | 31.00 | 1-3/4 | 3-9/16 | 34.30 |
| 9/32 | 3/8 | 4 | 3/4 | 2-1/2 | 21.60 | — | — | — | — | — | — |
| 5/16 | 3/8 | 4 | 3/4 | 2-1/2 | 21.60 | 1-3/8 | 3-1/8 | 31.00 | 2 | 3-3/4 | 34.30 |
| 11/32 | 3/8 | 4 | 3/4 | 2-1/2 | 21.60 | — | — | — | — | — | — |
| 3/8 | 3/8 | 4 | 3/4 | 2-1/2 | 21.60 | 1-1/2 | 3-1/4 | 31.00 | 2-1/2 | 4-1/4 | 37.00 |
| 13/32 | 3/8 | 4 | 1 | 2-11/16 | 32.25 | — | — | — | — | — | — |
| 7/16 | 3/8 | 4 | 1 | 2-11/16 | 32.25 | — | — | — | — | — | — |
| 15/32 | 3/8 | 4 | 1 | 2-11/16 | 32.25 | — | — | — | — | — | — |
| 1/2 | 3/8 | 4 | 1 | 2-11/16 | 32.25 | — | — | — | — | — | — |
| 1/2 | 1/2 | 4 | 1-1/4 | 3-1/4 | 33.80 | 2 | 4 | 41.00 | 3 | 5 | 48.00 |
| 9/16 | 1/2 | 4 | 1-3/8 | 3-3/8 | 48.00 | — | — | — | — | — | — |
| 5/8 | 1/2 | 4 | 1-3/8 | 3-3/8 | 48.00 | — | — | — | — | — | — |
| 5/8 | 5/8 | 4 | 1-5/8 | 3-3/4 | 48.00 | 2-1/2 | 4-5/8 | 60.00 | 4 | 6-1/8 | 79.50 |
| 11/16 | 5/8 | 4 | 1-5/8 | 3-3/4 | 66.00 | — | — | — | — | — | — |
| 3/4 | 1/2 | 4 | 1-5/8 | 3-5/8 | 60.00 | — | — | — | — | — | — |
| 3/4 | 5/8 | 4 | 1-5/8 | 3-3/4 | 60.00 | — | — | — | — | — | — |
| 3/4 | 3/4 | 4 | 1-5/8 | 3-7/8 | 60.00 | 3 | 5-1/4 | 75.00 | 4 | 6-1/4 | 88.75 |
| 13/16 | 3/4 | 4 | 1-7/8 | 4-1/8 | 76.90 | — | — | — | — | — | — |
| 7/8 | 3/4 | 4 | 1-7/8 | 4-1/8 | 76.90 | — | — | — | — | — | — |
| 7/8 | 7/8 | 4 | 1-7/8 | 4-1/8 | 76.90 | 3-1/2 | 5-3/4 | 91.00 | — | — | — |
| 15/16 | 3/4 | 4 | 1-7/8 | 4-1/8 | 88.00 | — | — | — | — | — | — |
| 1 | 5/8 | 6 | 1-7/8 | 4 | 92.00 | — | — | — | — | — | — |
| 1 | 3/4 | 4 | 1-7/8 | 4-1/8 | 92.00 | — | — | — | — | — | — |
| 1 | 1 | 4 | 2 | 4-1/2 | 92.00 | 4 | 6-1/2 | 120.00 | 6 | 8-1/2 | 150.00 |
| 1-1/16 | 3/4 | 6 | 2 | 4-1/4 | 132.00 | — | — | — | — | — | — |
| 1-1/8 | 3/4 | 6 | 2 | 4-1/2 | 132.00 | — | — | — | — | — | — |
| 1-1/8 | 1 | 4 | 2 | 4-1/2 | 132.00 | — | — | — | — | — | — |
| 1-1/8 | 1 | 6 | 2 | 4-1/2 | 132.00 | 4 | 6-1/2 | 170.00 | — | — | — |
| 1-3/16 | 3/4 | 6 | 2 | 4-1/2 | 120.00 | — | — | — | — | — | — |
| 1-1/4 | 3/4 | 6 | 2 | 4-1/4 | 120.00 | — | — | — | — | — | — |
| 1-1/4 | 1-1/4 | 4 | 2 | 4-1/2 | 120.00 | 4 | 6-1/2 | 170.00 | 6 | 8-1/2 | 212.00 |
| 1-1/4 | 1-1/4 | 6 | 2 | 4-1/2 | 120.00 | 4 | 6-1/2 | 170.00 | — | — | — |
| 1-5/16 | 3/4 | 6 | 2 | 4-1/2 | 130.00 | — | — | — | — | — | — |
| 1-3/8 | 3/4 | 6 | 2 | 4-1/2 | 130.00 | — | — | — | — | — | — |
| 1-7/16 | 3/4 | 6 | 2 | 4-1/2 | 156.00 | — | — | — | — | — | — |
| 1-1/2 | 3/4 | 6 | 2 | 4-1/2 | 156.00 | — | — | — | — | — | — |
| 1-1/2 | 1-1/4 | 4 | 2 | 4-1/2 | 156.00 | — | — | — | — | — | — |
| 1-1/2 | 1-1/4 | 6 | 2 | 4-1/2 | 156.00 | 4 | 6-1/2 | 259.00 | 8 | 10-1/2 | 285.00 |
| 1-3/4 | 1-1/4 | 4 | 2 | 4-1/2 | 235.00 | 4 | 6-1/2 | 298.80 | — | — | — |
| 1-3/4 | 1-1/4 | 6 | 2 | 4-1/2 | 235.00 | — | — | — | — | — | — |
| 2 | 1-1/4 | 4 | — | — | — | 4 | 6-1/2 | 327.00 | — | — | — |
| 2 | 1-1/4 | 6 | 2 | 4-1/2 | 283.00 | 6 | 6-1/2 | 327.00 | — | — | — |

M2-AL ROUGHING END MILLS

The aluminum content of the M2-AL rougher reduces friction during cutting allowing the rougher to run cooler and last longer.



Specially formulated H.S. Steel which in many application rivals the performance of Cobalt. The cost is significantly lower than Cobalt roughers

◆ REGULAR LENGTH

| Cutter Dia. | Shank Dia. | Length of Cut | Overall Length | No. of Flutes | Tool No. | Price Each |
|-------------|------------|---------------|----------------|---------------|----------|------------|
| 1/4 | 3/8 | 5/8 | 2-7/16 | 4 | ALRM8-3 | 9.38 |
| 5/16 | 3/8 | 3/4 | 2-1/2 | 4 | ALRM10-3 | 9.38 |
| 3/8 | 3/8 | 3/4 | 2-1/2 | 4 | ALRM12-3 | 9.38 |
| 7/16 | 3/8 | 1 | 2-11/16 | 4 | ALRM14-3 | 12.15 |
| 1/2 | 1/2 | 1-1/4 | 3-1/4 | 4 | ALR16-4 | 12.93 |
| 5/8 | 5/8 | 1-5/8 | 3-3/4 | 4 | ALR20-5 | 14.57 |
| 3/4 | 3/4 | 1-5/8 | 3-3/4 | 4 | ALR24-6 | 18.06 |
| 7/8 | 3/4 | 1-5/8 | 4-1/8 | 4 | ALR28-6 | 23.36 |
| 1 | 3/4 | 2 | 4-1/2 | 6 | ALR32-6 | 26.17 |
| 1 | 1 | 2 | 4-1/2 | 6 | ALR32-8 | 26.17 |
| 1-1/8 | 1 | 2 | 4-1/2 | 6 | ALR36-8 | 33.98 |
| 1-1/4 | 1-1/4 | 2 | 4-1/2 | 6 | ALR40-10 | 38.97 |
| 1-1/2 | 1-1/4 | 2 | 4-1/2 | 6 | ALR48-10 | 51.72 |
| 2 | 1-1/4 | 2 | 4-1/2 | 8 | ALR64-10 | 77.98 |

◆ LONG LENGTH

| Cutter Dia. | Shank Dia. | Length of Cut | Overall Length | No. of Flutes | Tool No. | Price Each |
|-------------|------------|---------------|----------------|---------------|----------|------------|
| 1/2 | 1/2 | 2 | 4 | 4 | ALL16-4 | 16.77 |
| 5/8 | 5/8 | 2-1/2 | 4-5/8 | 4 | ALL20-5 | 16.77 |
| 3/4 | 3/4 | 3 | 5-1/4 | 4 | ALL24-6 | 22.66 |
| 7/8 | 3/4 | 3-1/2 | 5-5/8 | 4 | ALL28-6 | 27.53 |
| 1 | 1 | 4 | 6-1/2 | 6 | ALL32-8 | 31.30 |
| 1-1/4 | 1-1/4 | 4 | 6-1/2 | 6 | ALL40-10 | 51.68 |
| 1-1/2 | 1-1/4 | 4 | 6-1/2 | 6 | ALL48-10 | 63.15 |
| 2 | 1-1/4 | 4 | 6-1/2 | 6 | ALL64-10 | 94.59 |

Chipmaster **COBALT** ROUGHING END MILLS



► ROUGH PROFILE

For deeper slotting or heavy side cuts.
For general purpose applications in steel.

● FINE PROFILE

For shallow slotting or peripheral milling.
Recommended for use in exotic materials.

| Standard Length | | | | | Rough Profile | | Fine Profile | |
|-------------------|------------|---------------|----------------|---------------|---------------|------------|--------------|------------|
| Cutter Dia. | Shank Dia. | Length of Cut | Overall Length | No. of Flutes | Tool Number | Price Each | Tool Number | Price Each |
| 1/4 | 3/8 | 5/8 | 2-7/16 | 4 | CR8-3 | 39.80 | CRF8-3 | 39.80 |
| 5/16 | 3/8 | 3/4 | 2-1/2 | 4 | CR10-3 | 39.80 | CRF10-3 | 39.80 |
| 3/8 | 3/8 | 3/4 | 2-1/2 | 4 | CR12-3 | 41.00 | CRF12-3 | 41.00 |
| 7/16 | 3/8 | 1 | 2-11/16 | 4 | CR14-3 | 49.95 | CRF14-3 | 49.95 |
| 1/2 | 1/2 | 1-1/4 | 3-1/4 | 4 | CR16-4 | 56.00 | CRF16-4 | 56.00 |
| 9/16 | 1/2 | 1-3/8 | 3-3/8 | 4 | CR18-4 | 61.90 | CRF18-4 | 61.90 |
| 5/8 | 5/8 | 1-5/8 | 3-3/4 | 4 | CR20-5 | 69.50 | CRF20-5 | 69.50 |
| 11/16 | 5/8 | 1-5/8 | 3-3/4 | 4 | CR22-5 | 74.50 | CRF22-5 | 74.50 |
| 3/4 | 5/8 | 1-5/8 | 3-3/4 | 4 | CR24-5 | 80.69 | CRF24-5 | 80.69 |
| 3/4 | 3/4 | 1-5/8 | 3-3/4 | 4 | CR24-6 | 89.85 | CRF24-6 | 89.85 |
| 13/16 | 3/4 | 1-5/8 | 3-3/4 | 4 | CR26-6 | 90.50 | CRF26-6 | 90.50 |
| 7/8 | 3/4 | 1-5/8 | 4-1/8 | 5 | CR28-6 | 90.50 | CRF28-6 | 90.50 |
| 7/8 | 7/8 | 1-7/8 | 4-1/8 | 5 | CR28-7 | 90.50 | CRF28-7 | 90.50 |
| 15/16 | 7/8 | 1-7/8 | 4-1/8 | 4 | CR30-7 | 118.38 | — | — |
| 1 | 3/4 | 2 | 4-1/2 | 5 | CR32-6 | 123.75 | CRF32-6 | 123.75 |
| 1 | 1 | 2 | 4-1/2 | 5 | CR32-8 | 123.75 | CRF32-8 | 123.75 |
| 1-1/8 | 3/4 | 2 | 4-1/4 | 5 | CR36-6 | 131.25 | — | — |
| 1-1/8 | 1 | 2 | 4-1/2 | 6 | CR36-8 | 131.25 | CRF36-8 | 131.25 |
| 1-1/4 | 3/4 | 2 | 4-1/4 | 6 | CR40-6 | 152.50 | — | — |
| 1-1/4 | 1 | 2 | 4-1/2 | 5 | CR40-8 | 152.50 | — | — |
| 1-1/4 | 1-1/4 | 2 | 4-1/2 | 6 | CR40-10 | 152.50 | CRF40-10 | 152.50 |
| 1-1/2 | 3/4 | 2 | 4-1/4 | 6 | CR48-6 | 196.95 | — | — |
| 1-1/2 | 1-1/4 | 2 | 4-1/2 | 6 | CR48-10 | 196.95 | CRF48-10 | 196.95 |
| 1-3/4 | 1-1/4 | 2 | 4-1/2 | 6 | CR56-10 | 229.10 | CRF56-10 | 229.10 |
| 2 | 3/4 | 2 | 4-1/2 | 8 | CR64-6 | 267.75 | — | — |
| 2 | 1-1/4 | 2 | 4-1/2 | 8 | CR64-10 | 267.75 | — | — |
| 2 | 2* | 2 | 5-3/4 | 8 | CR64-162 | 275.00 | — | — |
| 2 | 2* | 3 | 4-3/4 | 8 | CR64-163 | 295.75 | — | — |
| 2 | 2* | 4 | 7-3/4 | 8 | CR64-164 | 339.00 | — | — |
| Medium Length | | | | | Rough Profile | | Fine Profile | |
| 1 | 1 | 3 | 5-1/2 | 5 | CM32-8 | 121.50 | CMF32-8 | 121.50 |
| 1-1/4 | 1-1/4 | 3 | 5-1/2 | 6 | CM40-10 | 155.70 | — | — |
| 1-1/2 | 1-1/4 | 3 | 5-1/2 | 6 | CM48-10 | 203.25 | — | — |
| 2 | 2* | 5 | 8-3/4 | 8 | CM64-165 | 386.66 | — | — |
| 2 | 2* | 6 | 9-3/4 | 8 | CM64-166 | 410.00 | — | — |
| Long Length | | | | | Rough Profile | | Fine Profile | |
| 1/2 | 1/2 | 2 | 4 | 4 | CL16-4 | 64.80 | — | — |
| 5/8 | 5/8 | 2-1/2 | 4-5/8 | 4 | CL20-5 | 89.50 | CLF20-5 | 89.50 |
| 3/4 | 5/8 | 3 | 5-1/8 | 4 | CL24-5 | 99.95 | — | — |
| 3/4 | 3/4 | 3 | 5-1/4 | 4 | CL24-6 | 99.95 | CLF24-6 | 99.95 |
| 7/8 | 3/4 | 3-1/2 | 5-5/8 | 4 | CL28-6 | 126.75 | — | — |
| 7/8 | 7/8 | 3-1/2 | 5-3/4 | 4 | CL28-7 | 126.75 | — | — |
| 1 | 1 | 4 | 6-1/2 | 6 | CL32-8 | 135.95 | CLF32-8 | 135.95 |
| 1-1/4 | 3/4 | 4 | 6-1/4 | 6 | CL40-6 | 185.75 | — | — |
| 1-1/4 | 1-1/4 | 4 | 6-1/2 | 6 | CL40-10 | 185.75 | CLF40-10 | 185.75 |
| 1-1/2 | 1-1/4 | 4 | 6-1/2 | 6 | CL48-10 | 240.00 | — | — |
| 1-1/2 | 3/4 | 4 | 6-1/4 | 6 | CL48-6 | 240.00 | — | — |
| 1-3/4 | 1-1/4 | 4 | 6-1/2 | 8 | CL56-10 | 321.50 | — | — |
| 2 | 1-1/4 | 4 | 6-1/2 | 6 | CL64-10 | 414.50 | — | — |
| 2 | 2* | 7 | 10-3/4 | 8 | CL64-167 | 557.00 | — | — |
| 2 | 2* | 8 | 11-3/4 | 8 | CL64-168 | 690.00 | — | — |
| 2 | 2* | 12 | 15-3/4 | 8 | CL64-162 | 895.00 | — | — |
| Extra Long Length | | | | | Rough Profile | | Fine Profile | |
| 1 | 1 | 6 | 8-1/2 | 6 | CX32-8 | 179.80 | — | — |
| 1-1/4 | 1-1/4 | 6 | 8-1/2 | 6 | CX40-10 | 238.00 | — | — |
| 1-1/2 | 1-1/4 | 5 | 7-1/2 | 6 | CX48-10 | 238.00 | — | — |
| 1-1/2 | 1-1/4 | 6 | 8-1/2 | 6 | CX48-10L | 349.00 | — | — |

* Supplied with combination shanks.



● 3 FLUTE HIGH HELIX CENTER CUT

For use in aluminum and other nonferrous materials.

| Three Flute | | | | | |
|-----------------|------------|---------------|----------------|-------------|------------|
| Cutter Dia. | Shank Dia. | Length of Cut | Overall Length | Tool Number | Price Each |
| Standard Length | | | | | |
| 3/8 | 3/8 | 3/4 | 2-1/2 | CRA12-3 | 51.12 |
| 1/2 | 1/2 | 1-1/4 | 3-1/4 | CRA16-4 | 69.00 |
| 5/8 | 5/8 | 1-5/8 | 3-3/4 | CRA20-5 | 85.10 |
| 3/4 | 3/4 | 1-5/8 | 3-7/8 | CRA24-6 | 110.17 |
| 7/8 | 3/4 | 2 | 4-1/8 | CRA28-7 | 110.95 |
| 1 | 3/4 | 1-1/2 | 3-3/4 | CRA32-6 | 151.80 |
| 1 | 1 | 2 | 4-1/2 | CRA32-8 | 151.80 |
| 1-1/4 | 1-1/4 | 2 | 4-1/2 | CRA40-10 | 186.88 |
| 1-1/2 | 1-1/4 | 2 | 4-1/2 | CRA48-10 | 241.50 |
| 2 | 1-1/4 | 2 | 4-1/2 | CRA64-10 | 391.40 |
| Long Length | | | | | |
| 1/2 | 1/2 | 2 | 4 | CLA16-4 | 79.47 |
| 5/8 | 5/8 | 2-1/2 | 4-5/8 | CLA20-5 | 109.66 |
| 3/4 | 3/4 | 3 | 5-1/4 | CLA24-6 | 123.97 |
| 1 | 3/4 | 3 | 5-1/4 | CLA32-6 | 166.45 |
| 1 | 1 | 3 | 5-1/4 | CLA32-8 | 166.45 |
| 1 | 1 | 4 | 6-1/2 | CLA32-8A | 166.45 |
| 1-1/4 | 1-1/4 | 4 | 6-1/2 | CLA40-10 | 227.70 |
| 1-1/2 | 1-1/4 | 4 | 6-1/2 | CLA48-10 | 294.40 |
| 2 | 1-1/4 | 3 | 5-1/4 | CLA64-10 | 444.65 |
| 2 | 1-1/4 | 4 | 6-1/2 | CLA64-10A | 476.65 |

● STUB LENGTH ROUGH PROFILE



| Cutter Dia. | Shank Dia. | Length of Cut | Overall Length | Tool Number | No. of Flutes | Price Each |
|-------------|------------|---------------|----------------|-------------|---------------|------------|
| 1/4 | 3/8 | 5/16 | 2-1/8 | CRS8-3 | 4 | 36.00 |
| 5/16 | 3/8 | 7/16 | 2-3/16 | CRS10-3 | 4 | 36.00 |
| 3/8 | 3/8 | 7/16 | 2-3/16 | CRS12-3 | 4 | 36.00 |
| 1/2 | 1/2 | 5/8 | 2-5/8 | CRS16-4 | 4 | 49.00 |
| 5/8 | 5/8 | 3/4 | 2-7/8 | CRS20-5 | 4 | 59.50 |
| 3/4 | 3/4 | 3/4 | 3 | CRS24-6 | 4 | 69.70 |
| 7/8 | 3/4 | 1-1/8 | 3-3/8 | CRS28-6 | 5 | 89.00 |
| 1 | 3/4 | 1-1/8 | 3-3/8 | CRS32-6 | 5 | 108.25 |
| 1 | 1 | 1-1/8 | 3-5/8 | CRS32-8 | 5 | 108.25 |
| 1-1/4 | 3/4 | 1-1/8 | 3-1/2 | CRS40-6 | 6 | 129.60 |
| 1-1/4 | 1-1/4 | 1-3/8 | 3-7/8 | CRS40-10 | 6 | 129.60 |

► COBALT ROUGHING SETS



SET NO. CRS - 1
Mini Set
4 Piece Set
Contains 1 piece of each:
1/4, 5/16, 3/8, 1/2
Supplied in wood block
SET PRICE — 177.00

SET NO. CRS - 2
Bridgeport Set
4 Piece Set
Contains 1 piece of each:
1/2, 5/8, 3/4 x 3/4, 1 x 3/4
Supplied in wood block
SET PRICE — \$339.00



• COBALT ROUGHING END MILLS

SINGLE END

Shank type — Standard Length

ROUGH PROFILE

For deeper slotting or heavy side cuts.
For general purpose applications in steel.



FINE PROFILE

For shallow slotting or peripheral milling.
Recommended for use in exotic materials.

| Shank Type | | | | | Rough Profile | | Fine Profile | |
|-------------|------------|---------------|----------------|---------------|---------------|------------|--------------|------------|
| Cutter Dia. | Shank Dia. | Length of Cut | Overall Length | No. of Flutes | Tool No. | Price Each | Tool No. | Price Each |
| 1/4 | 3/8 | 5/8 | 2-7/16 | 4 | CR8-3U | 42.46 | CRF8-3U | 42.46 |
| 3/8 | 3/8 | 3/4 | 2-1/2 | 4 | CR12-3U | 44.45 | CRF12-3U | 44.45 |
| 1/2 | 1/2 | 1-1/4 | 3-1/4 | 4 | CR16-4U | 60.00 | CRF16-4U | 60.00 |
| 5/8 | 5/8 | 1-5/8 | 3-3/4 | 4 | CR20-5U | 74.00 | CRF20-5U | 74.00 |
| 3/4 | 3/4 | 1-5/8 | 3-3/4 | 4 | CR24-6U | 95.80 | CRF24-6U | 95.80 |
| 7/8 | 3/4 | 1-5/8 | 4-1/8 | 5 | CR28-6U | 96.50 | CRF28-6U | 96.50 |
| 1 | 3/4 | 2 | 4-1/2 | 5 | CR32-6U | 132.00 | CRF32-6U | 132.00 |
| 1 | 1 | 2 | 4-1/2 | 5 | CR32-8U | 132.00 | CRF32-8U | 132.00 |
| 1-1/4 | 3/4 | 2 | 4-1/4 | 6 | CR40-6U | 162.50 | CRF40-6U | 162.50 |
| 1-1/2 | 1-1/4 | 2 | 4-1/2 | 6 | CR48-10U | 210.00 | CRF48-10U | 210.00 |
| 2 | 1-1/4 | 2 | 4-1/2 | 8 | CR64-10U | 285.00 | CRF64-10U | 285.60 |

• Chipmaster COBALT ROUGHING END MILLS

BALL END



ROUGH PROFILE

| Dia. of Cut | Shank Dia. | Length of Cut | Overall Length | No. of Flutes | Tool No. | Price Each | Dia. of Cut | Shank Dia. | Length of Cut | Overall Length | No. of Flutes | Tool No. | Price Each |
|-------------|------------|---------------|----------------|---------------|----------|------------|-------------|------------|---------------|----------------|---------------|----------|------------|
| 1/4 | 3/8 | 5/8 | 2-7/16 | 4 | CRB8-3 | 50.67 | 7/8 | 3/4 | 1-5/8 | 4-1/8 | 5 | CRB28-6 | 118.50 |
| 5/16 | 3/8 | 3/4 | 2-1/2 | 4 | CRB10-3 | 51.47 | 7/8 | 7/8 | 1-7/8 | 4-1/8 | 5 | CRB28-7 | 118.50 |
| 3/8 | 3/8 | 3/4 | 2-1/2 | 4 | CRB12-3 | 55.46 | 7/8 | 7/8 | 3-1/2 | 5-3/4 | 4 | CLB28-7 | 157.00 |
| 7/16 | 3/8 | 1 | 2-11/16 | 4 | CRB14-3 | 65.63 | 1 | 1 | 2 | 4-1/2 | 5 | CRB32-8 | 156.00 |
| 1/2 | 1/2 | 1-1/4 | 3-1/4 | 4 | CRB16-4 | 72.21 | 1 | 1 | 4 | 6-1/2 | 6 | CLB32-8 | 169.00 |
| 1/2 | 1/2 | 2 | 4 | 4 | CLB16-4 | 81.37 | 1-1/8 | 1 | 2 | 4-1/2 | 6 | CRB36-8 | 181.90 |
| 9/16 | 1/2 | 1-3/8 | 3-3/8 | 4 | CRB18-4 | 80.00 | 1-1/4 | 1-1/4 | 2 | 4-1/2 | 6 | CRB40-10 | 204.50 |
| 5/8 | 5/8 | 1-5/8 | 3-3/4 | 4 | CRB20-5 | 88.00 | 1-1/4 | 1-1/4 | 4 | 6-1/2 | 6 | CLB40-10 | 240.00 |
| 5/8 | 5/8 | 2-1/2 | 4-5/8 | 4 | CLB20-5 | 109.36 | 1-1/2 | 1-1/4 | 2 | 4-1/2 | 6 | CRB48-10 | 272.00 |
| 3/4 | 3/4 | 1-5/8 | 3-3/4 | 4 | CRB24-6 | 99.70 | 1-1/2 | 1-1/4 | 4 | 6-1/2 | 6 | CLB48-10 | 318.00 |
| 3/4 | 3/4 | 3 | 5-1/4 | 4 | CLB24-6 | 126.81 | | | | | | | |

Ball End Roughers also available in medium and extra long lengths. Please inquire.

• COBALT TiN/TiCN COATED ROUGHING END MILLS

ROUGH PROFILE

| Dia. of Cut | Shank Dia. | Length of Cut | Overall Length | No. of Flutes | TiN Tool No. | TiN Price Each | TiCN Tool No. | TiCN Price Each |
|-------------|------------|---------------|----------------|---------------|--------------|----------------|---------------|-----------------|
| 1/4 | 3/8 | 5/8 | 2-7/16 | 4 | CRT8-3 | 49.90 | CRTC8-3 | 51.00 |
| 5/16 | 3/8 | 3/4 | 2-1/2 | 4 | CRT10-3 | 49.90 | CRTC10-3 | 51.00 |
| 3/8 | 3/8 | 3/4 | 2-1/2 | 4 | CRT12-3 | 52.50 | CRTC12-3 | 53.50 |
| 7/16 | 3/8 | 1 | 2-11/16 | 4 | CRT14-3 | 61.50 | CRTC14-3 | 62.50 |
| 1/2 | 1/2 | 1-1/4 | 3-1/4 | 4 | CRT16-4 | 68.00 | CRTC16-4 | 69.00 |
| 9/16 | 1/2 | 1-3/8 | 3-3/8 | 4 | CRT18-4 | 77.00 | CRTC18-4 | 79.00 |
| 5/8 | 5/8 | 1-5/8 | 3-3/4 | 4 | CRT20-5 | 86.00 | CRTC20-5 | 89.90 |
| 3/4 | 5/8 | 1-5/8 | 3-3/4 | 4 | CRT24-5 | 97.15 | CRTC24-5 | 98.00 |
| 3/4 | 3/4 | 1-5/8 | 3-3/4 | 4 | CRT24-6 | 97.15 | CRTC24-6 | 98.00 |
| 7/8 | 3/4 | 1-5/8 | 4-1/8 | 5 | CRT28-6 | 118.00 | CRTC28-6 | 127.40 |
| 1 | 3/4 | 2 | 4-1/2 | 5 | CRT32-6 | 146.50 | CRTC32-6 | 156.80 |
| 1 | 1 | 2 | 4-1/2 | 5 | CRT32-8 | 146.50 | CRTC32-8 | 156.80 |
| 1-1/8 | 3/4 | 2 | 4-1/4 | 5 | CRT36-6 | 179.50 | CRTC36-6 | 192.00 |
| 1-1/8 | 1 | 2 | 4-1/2 | 6 | CRT36-8 | 179.50 | CRTC36-8 | 192.00 |
| 1-1/4 | 3/4 | 2 | 4-1/4 | 6 | CRT40-6 | 201.10 | CRTC40-6 | 212.20 |
| 1-1/4 | 1 | 2 | 4-1/2 | 5 | CRT40-8 | 201.10 | CRTC40-8 | 212.20 |
| 1-1/2 | 1-1/4 | 2 | 4-1/2 | 6 | CRT48-10 | 235.50 | CRTC48-10 | 249.00 |
| 2 | 1-1/4 | 2 | 4-1/2 | 8 | CRT64-10 | 360.00 | CRTC64-10 | 385.00 |

• SOLID CARBIDE ROUGHING END MILLS

SINGLE END



FOUR FLUTE

| Size | Shank Diameter | Flute Length | Overall Length | Tool No. | Price Each |
|------|----------------|--------------|----------------|----------|------------|
| 1/4 | 1/4 | 3/4 | 2-1/2 | CRSC8-3 | 39.90 |
| 5/16 | 5/16 | 3/4 | 2-1/2 | CRSC10-3 | 47.00 |
| 3/8 | 3/8 | 1 | 2-1/2 | GRSC12-3 | 54.00 |
| 7/16 | 7/16 | 1 | 3 | CRSC14-3 | 64.00 |
| 1/2 | 1/2 | 1-1/4 | 3 | CRSC16-4 | 68.90 |
| 5/8 | 5/8 | 1-5/8 | 3-1/2 | GRSC20-6 | 113.90 |
| 3/4 | 3/4 | 1-5/8 | 4 | CRSC24-6 | 156.90 |
| 1 | 1 | 1-3/4 | 4 | CRSC32-8 | 254.00 |

T-15 COBALT END MILLS

- For "difficult to machine" materials such as stainless steels, cast iron, abrasive plastics and bakelite.
- Greater abrasive resistance and high red hardness.
- Designed for use in high strength thermal resistant metals.

- For machining (30-50) Rockwell "C" hardness range steels.
- Higher surface speeds may be used.
- Expect significantly longer tool life.

TWO FLUTE, REGULAR LENGTH

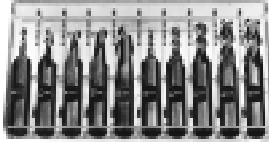


• LIST NO. T2031

| Diameter of Cut | Shank Dia. | Length of Cut | Overall Length | Price Each |
|-----------------|------------|---------------|----------------|------------|
| 1/8 | 3/8 | 3/8 | 2-5/16 | 37.00 |
| 3/16 | 3/8 | 7/16 | 2-5/16 | 37.00 |
| 1/4 | 3/8 | 1/2 | 2-5/16 | 37.00 |
| 5/16 | 3/8 | 9/16 | 2-5/16 | 37.00 |
| 3/8 | 3/8 | 9/16 | 2-5/16 | 37.00 |
| 7/16 | 3/8 | 13/16 | 2-1/2 | 47.28 |
| 1/2 | 1/2 | 1 | 3 | 50.00 |
| 5/8 | 5/8 | 1-5/16 | 3-7/16 | 72.00 |
| 3/4 | 3/4 | 1-5/16 | 3-9/16 | 84.00 |
| 7/8 | 7/8 | 1-1/2 | 3-3/4 | 115.37 |
| 1 | 1 | 1-5/8 | 4-1/8 | 134.00 |
| 1-1/4 | 1-1/4 | 1-5/8 | 4-1/8 | 190.00 |
| 1-1/2 | 1-1/4 | 1-5/8 | 4-1/8 | 240.00 |
| 1-3/4 | 1-1/4 | 1-5/8 | 4-1/8 | 283.99 |
| 2 | 1-1/4 | 1-5/8 | 4-1/8 | 331.18 |

SINGLE END

All multiple flute styles have center cutting teeth for plunge cutting.



SET

SET NO. TC151
10 Piece Set
Contains 1 piece of each:
Two and Four Flute
1/8, 3/16, 1/4, 5/16, 3/8
SET PRICE — \$369.00

CENTER CUTTING

MULTI-FLUTE, REGULAR LENGTH



• LIST NO. T2005

| Diameter of Cut | Shank Dia. | Length of Cut | Overall Length | No. of Flutes | Price Each |
|-----------------|------------|---------------|----------------|---------------|------------|
| 1/8 | 3/8 | 3/8 | 2-5/16 | 4 | 38.00 |
| 3/16 | 3/8 | 1/2 | 2-3/8 | 4 | 38.00 |
| 1/4 | 3/8 | 5/8 | 2-7/16 | 4 | 38.00 |
| 5/16 | 3/8 | 3/4 | 2-1/2 | 4 | 38.00 |
| 3/8 | 3/8 | 3/4 | 2-1/2 | 4 | 38.00 |
| 7/16 | 3/8 | 1 | 2-11/16 | 4 | 51.43 |
| 1/2 | 1/2 | 1-1/4 | 3-1/4 | 4 | 54.00 |
| 5/8 | 5/8 | 1-5/8 | 3-3/4 | 4 | 74.00 |
| 3/4 | 3/4 | 1-5/8 | 3-7/8 | 4 | 86.00 |
| 7/8 | 7/8 | 1-7/8 | 4-1/8 | 4 | 114.00 |
| 1 | 1 | 2 | 4-1/2 | 4 | 138.00 |
| 1-1/4 | 1-1/4 | 2 | 4-1/2 | 6 | 190.00 |
| 1-1/2 | 1-1/4 | 2 | 4-1/2 | 6 | 230.00 |
| 1-3/4 | 1-1/4 | 2 | 4-1/2 | 6 | 330.71 |
| 2 | 1-1/4 | 2 | 4-1/2 | 4 | 357.27 |
| 2 | 1-1/4 | 2 | 4-1/2 | 6 | 357.27 |
| 2 | 1-1/4 | 2 | 4-1/2 | 8 | 357.27 |

CENTER CUTTING

MULTI-FLUTE, LONG FLUTE LENGTH



• LIST NO. T2006

| Diameter of Cut | Shank Diameter | Length of Cut | Overall Length | Number of Flutes | Price Each |
|-----------------|----------------|---------------|----------------|------------------|------------|
| 1/4 | 3/8 | 1-1/4 | 3-1/16 | 4 | 45.00 |
| 5/16 | 3/8 | 1-3/8 | 3-1/8 | 4 | 45.00 |
| 3/8 | 3/8 | 1-1/2 | 3-1/4 | 4 | 45.00 |
| 1/2 | 1/2 | 2 | 4 | 4 | 58.00 |
| 5/8 | 5/8 | 2-1/2 | 4-5/8 | 4 | 80.00 |
| 3/4 | 3/4 | 3 | 5-1/4 | 4 | 94.00 |
| 1 | 1 | 4 | 6-1/2 | 4 | 164.00 |
| 1-1/4 | 1-1/4 | 4 | 6-1/2 | 6 | 254.00 |
| 1-1/2 | 1-1/4 | 4 | 6-1/2 | 6 | 355.81 |
| 2 | 1-1/4 | 4 | 6-1/2 | 6 | 474.57 |
| 2 | 1-1/4 | 4 | 6-1/2 | 8 | 474.57 |

CENTER CUTTING

MULTI-FLUTE, EXTRA LONG FLUTE LENGTH



• LIST NO. T2007

| Diameter of Cut | Shank Diameter | Length of Cut | Overall Length | Number of Flutes | Price Each |
|-----------------|----------------|---------------|----------------|------------------|------------|
| 1/4 | 3/8 | 1-3/4 | 3-9/16 | 4 | 56.00 |
| 5/16 | 3/8 | 2 | 3-3/4 | 4 | 56.00 |
| 3/8 | 3/8 | 2-1/2 | 4-1/4 | 4 | 56.00 |
| 1/2 | 1/2 | 3 | 5 | 4 | 74.00 |
| 5/8 | 5/8 | 4 | 6-1/8 | 4 | 100.00 |
| 3/4 | 3/4 | 4 | 6-1/4 | 4 | 110.00 |
| 1 | 1 | 6 | 8-1/2 | 4 | 220.00 |
| 1-1/2 | 1-1/4 | 6 | 8-1/2 | 6 | 519.25 |

BALL END

TWO FLUTE, REGULAR LENGTH



• LIST NO. T2091

| Diameter of Cut | Shank Diameter | Length of Cut | Overall Length | Price Each |
|-----------------|----------------|---------------|----------------|------------|
| 1/8 | 3/8 | 3/8 | 2-5/16 | 48.00 |
| 3/16 | 3/8 | 7/16 | 2-5/16 | 48.00 |
| 1/4 | 3/8 | 1/2 | 2-5/16 | 48.00 |
| 5/16 | 3/8 | 9/16 | 2-5/16 | 48.00 |
| 3/8 | 3/8 | 9/16 | 2-5/16 | 48.00 |
| 1/2 | 1/2 | 1 | 3 | 68.00 |
| 5/8 | 5/8 | 1-5/16 | 3-7/16 | 102.00 |
| 3/4 | 3/4 | 1-5/16 | 3-9/16 | 116.00 |
| 1 | 1 | 1-5/8 | 4-1/8 | 186.00 |
| 1-1/4 | 1-1/4 | 1-5/8 | 4-1/8 | 261.56 |
| 1-1/2 | 1-1/4 | 1-5/8 | 4-1/8 | 326.53 |

CENTER CUTTING

MULTI-FLUTE, REGULAR LENGTH



• LIST NO. T2092

| Diameter of Cut | Shank Diameter | Length of Cut | Overall Length | Number of Flutes | Price Each |
|-----------------|----------------|---------------|----------------|------------------|------------|
| 1/8 | 3/8 | 3/8 | 2-5/16 | 4 | 62.00 |
| 3/16 | 3/8 | 1/2 | 2-3/8 | 4 | 62.00 |
| 1/4 | 3/8 | 5/8 | 2-7/16 | 4 | 62.00 |
| 5/16 | 3/8 | 3/4 | 2-1/2 | 4 | 62.00 |
| 3/8 | 3/8 | 3/4 | 2-1/2 | 4 | 72.00 |
| 1/2 | 1/2 | 1-1/4 | 3-1/4 | 4 | 84.00 |
| 5/8 | 5/8 | 1-5/8 | 3-3/4 | 4 | 110.00 |
| 3/4 | 3/4 | 1-5/8 | 3-7/8 | 4 | 130.00 |
| 1 | 1 | 2 | 4-1/2 | 4 | 190.00 |
| 1-1/4 | 1-1/4 | 2 | 4-1/2 | 6 | 280.00 |
| 1-1/2 | 1-1/4 | 2 | 4-1/2 | 6 | 330.00 |

SOLID CARBIDE END MILLS

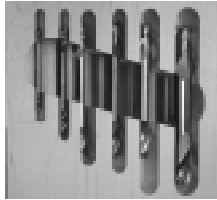


SINGLE END REGULAR LENGTH

- LIST NO. KS92 — TWO FLUTE
- LIST NO. KST92 — TiN TWO FLUTE
- LIST NO. KSTLN92 — TiAIN TWO FLUTE

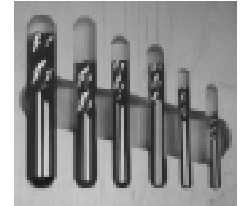


- LIST NO. KS94 — FOUR FLUTE
- LIST NO. KST94 — TiN FOUR FLUTE
- LIST NO. KSTLN94 — TiAIN FOUR FLUTE



SET NO. KS92S
Solid Micrograin Carbide
2 Flute - Single End
6 Piece Set
Contains 1 piece of each:
1/8, 3/16, 1/4, 5/16, 3/8, 1/2
Supplied in wood case.
SET PRICE — \$161.25

| Dia. of Cut | Shank Diameter | Flute Length | Overall Length | Two Flute or Four Flute Price Each | | |
|-------------|----------------|--------------|----------------|------------------------------------|------------------------------|------------------------------------|
| | | | | Solid Carbide KS92 KS94 | TiN Coated KST92 KST94 | TiAIN Coated KSTLN92 KSTLN94 |
| 1/64 | 1/8 | 1/32 | 1-1/2 | 19.50 | 22.50 | 24.50 |
| 1/32 | 1/8 | 5/64 | 1-1/2 | 14.75 | 18.20 | 20.00 |
| 3/64 | 1/8 | 7/64 | 1-1/2 | 14.75 | 18.20 | 20.00 |
| 1/16 | 1/8 | 3/16 | 1-1/2 | 12.10 | 16.00 | 19.00 |
| 5/64 | 1/8 | 3/16 | 1-1/2 | 13.00 | 17.00 | 20.00 |
| 3/32 | 1/8 | 9/32 | 1-1/2 | 12.10 | 16.00 | 19.00 |
| 7/64 | 1/8 | 3/8 | 1-1/2 | 13.00 | 17.00 | 20.00 |
| 1/8 | 1/8 | 1/2 | 1-1/2 | 12.10 | 16.00 | 19.00 |
| 9/64 | 3/16 | 1/2 | 2 | 17.05 | 20.00 | 21.50 |
| 5/32 | 3/16 | 1/2 | 2 | 16.65 | 19.80 | 21.80 |
| 11/64 | 3/16 | 5/8 | 2 | 17.05 | 20.40 | 22.00 |
| 3/16 | 3/16 | 5/8 | 2 | 17.05 | 20.40 | 22.00 |
| 13/64 | 1/4 | 5/8 | 2-1/2 | 20.90 | 29.50 | 31.00 |
| 7/32 | 1/4 | 5/8 | 2-1/2 | 20.90 | 29.50 | 34.00 |
| 15/64 | 1/4 | 3/4 | 2-1/2 | 22.55 | 31.40 | 33.50 |
| 1/4 | 1/4 | 3/4 | 2-1/2 | 21.95 | 31.00 | 33.00 |
| 17/64 | 5/16 | 3/4 | 2-1/2 | 26.80 | 39.00 | 42.00 |
| 9/32 | 5/16 | 3/4 | 2-1/2 | 25.20 | 38.50 | 41.50 |
| 19/64 | 5/16 | 13/16 | 2-1/2 | 26.80 | 39.00 | 42.00 |
| 5/16 | 5/16 | 13/16 | 2-1/2 | 24.75 | 37.70 | 40.00 |
| 21/64 | 3/8 | 7/8 | 2-1/2 | 35.20 | 45.50 | 48.50 |
| 11/32 | 3/8 | 7/8 | 2-1/2 | 33.00 | 44.20 | 49.00 |
| 23/64 | 3/8 | 7/8 | 2-1/2 | 35.20 | 45.50 | 50.00 |
| 3/8 | 3/8 | 7/8 | 2-1/2 | 32.00 | 44.65 | 49.00 |
| 13/32 | 7/16 | 1 | 2-3/4 | 32.00 | 44.65 | 49.00 |
| 7/16 | 7/16 | 1 | 2-3/4 | 46.00 | 59.00 | 72.00 |
| 15/32 | 1/2 | 1 | 3 | 59.00 | 69.90 | 82.00 |
| 1/2 | 1/2 | 1 | 3 | 53.40 | 65.70 | 82.00 |
| 9/16 | 9/16 | 1-1/8 | 3-1/2 | 90.60 | 109.40 | 125.00 |
| 5/8 | 5/8 | 1-1/4 | 3-1/2 | 101.35 | 125.00 | 130.00 |
| 11/16 | 3/4 | 1-1/2 | 4 | 149.60 | 185.00 | 190.00 |
| 3/4 | 3/4 | 1-1/2 | 4 | 149.60 | 185.00 | 190.00 |
| 7/8 | 7/8 | 1-1/2 | 4 | 259.10 | 279.60 | 300.00 |
| 1 | 1 | 1-1/2 | 4 | 265.00 | 299.77 | 325.00 |



SET NO. KS94S
Solid Micrograin Carbide
4 Flute - Single End
6 Piece Set
Contains 1 piece of each:
1/8, 3/16, 1/4, 5/16, 3/8, 1/2
Supplied in wood case.
SET PRICE — \$161.25

LONG LENGTH

- LIST NO. KS92L — TWO FLUTE
- LIST NO. KS94L — FOUR FLUTE

| Dia. of Cut | Shank Dia. | Flute Length | Two Flute or Four Flute Price Each | |
|-------------|------------|--------------|------------------------------------|----------------|
| | | | Overall Length | KS92L KS94L |
| 1/8 | 1/8 | 3/4 | 2-1/4 | 19.90 |
| 3/16 | 3/16 | 3/4 | 2-1/4 | 23.95 |
| 1/4 | 1/4 | 1-1/8 | 3 | 32.00 |
| 5/16 | 5/16 | 1-1/8 | 3 | 35.70 |
| 3/8 | 3/8 | 1-1/8 | 3 | 45.00 |
| 7/16 | 7/16 | 2 | 4 | 69.50 |
| 1/2 | 1/2 | 2 | 4 | 85.00 |
| 5/8 | 5/8 | 2-1/4 | 5 | 175.00 |
| 3/4 | 3/4 | 2-1/4 | 5 | 230.80 |
| 1 | 1 | 2-1/4 | 5 | 399.00 |

EXTRA LONG LENGTH

- LIST NO. KS92XL — TWO FLUTE
- LIST NO. KS94XL — FOUR FLUTE

| Dia. of Cut | Shank Dia. | Flute Length | Two Flute or Four Flute Price Each | |
|-------------|------------|--------------|------------------------------------|------------------|
| | | | Overall Length | KS92XL KS94XL |
| 1/8 | 1/8 | 1 | 3 | 26.50 |
| 3/16 | 3/16 | 1-1/8 | 3 | 30.50 |
| 1/4 | 1/4 | 1-1/2 | 4 | 37.50 |
| 5/16 | 5/16 | 1-5/8 | 4 | 47.90 |
| 3/8 | 3/8 | 1-3/4 | 4 | 69.77 |
| 7/16 | 7/16 | 3 | 6 | 125.85 |
| 1/2 | 1/2 | 3 | 6 | 129.00 |
| 5/8 | 5/8 | 3 | 6 | 237.00 |
| 3/4 | 3/4 | 3 | 6 | 298.00 |
| 1 | 1 | 3 | 6 | 440.00 |

DOUBLE END

3/8" WELDON SHANKS

- LIST NO. KD82 — TWO FLUTE
- LIST NO. KD84 — FOUR FLUTE

CENTER CUTTING



| Dia. of Cut | Shank Dia. | Flute Length | Two Flute or Four Flute Price Each | |
|-------------|------------|--------------|------------------------------------|--------------|
| | | | Overall Length | KD82 KD84 |
| 1/8 | 3/8 | 3/8 | 3-1/16 | 36.00 |
| 5/32 | 3/8 | 7/16 | 3-1/8 | 38.05 |
| 3/16 | 3/8 | 1/2 | 3-1/4 | 39.65 |
| 7/32 | 3/8 | 9/16 | 3-3/8 | 45.65 |
| 1/4 | 3/8 | 5/8 | 3-3/8 | 48.70 |

| Dia. of Cut | Shank Dia. | Flute Length | Two Flute or Four Flute Price Each | |
|-------------|------------|--------------|------------------------------------|--------------|
| | | | Overall Length | KD82 KD84 |
| 5/16 | 3/8 | 3/4 | 3-1/2 | 58.50 |
| 11/32 | 3/8 | 3/4 | 3-1/2 | 63.50 |
| 3/8 | 3/8 | 3/4 | 3-1/2 | 63.50 |
| 7/16 | 1/2 | 7/8 | 4 | 99.50 |
| 1/2 | 1/2 | 1 | 4 | 101.00 |



MICROGRAIN

SOLID CARBIDE END MILLS

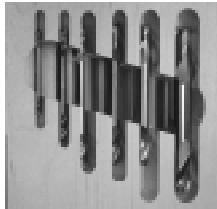
DOUBLE END

STUB LENGTH — CENTER CUTTING



- LIST NO. KD92 — TWO FLUTE
- LIST NO. KDT92 — TiN TWO FLUTE
- LIST NO. KDTLN92 — TiAIN TWO FLUTE

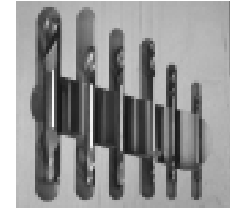
- LIST NO. KD94 — FOUR FLUTE
- LIST NO. KDT94 — TiN FOUR FLUTE
- LIST NO. KDTLN94 — TiAIN FOUR FLUTE



SET NO. KD92S

Solid Micrograin Carbide
2 Flute - Double End
6 Piece Set
Contains 1 piece of each:
1/8, 3/16, 1/4, 5/16, 3/8, 1/2
Supplied in wood case
SET PRICE — \$205.65

| Dia. of Cut | Shank Dia. | Flute Length | Overall Length | Two or Four Flute Price Each | | |
|-------------|------------|--------------|----------------|------------------------------|------------------------|------------------------------|
| | | | | Solid Carbide KD92 KD94 | TiN Coated KDT92 KDT94 | TiAIN Coated KDTLN92 KDTLN94 |
| 1/32 | 1/8 | 1/16 | 1-1/2 | 17.00 | 21.50 | 22.50 |
| 3/64 | 1/8 | 3/32 | 1-1/2 | 16.10 | 20.55 | 21.50 |
| 1/16 | 1/8 | 1/8 | 1-1/2 | 14.30 | 19.66 | 21.50 |
| 5/64 | 1/8 | 1/8 | 1-1/2 | 16.10 | 20.55 | 22.50 |
| 3/32 | 1/8 | 3/16 | 1-1/2 | 14.30 | 19.66 | 22.50 |
| 7/64 | 1/8 | 3/16 | 1-1/2 | 16.10 | 20.55 | 22.50 |
| 1/8 | 1/8 | 1/4 | 1-1/2 | 13.45 | 18.40 | 24.70 |
| 9/64 | 3/16 | 5/16 | 2 | 23.70 | 29.00 | 30.00 |
| 5/32 | 3/16 | 5/16 | 2 | 19.00 | 25.70 | 26.90 |
| 11/64 | 3/16 | 5/16 | 2 | 23.70 | 29.00 | 30.00 |
| 3/16 | 3/16 | 3/8 | 2 | 20.20 | 26.48 | 27.70 |
| 13/64 | 1/4 | 1/2 | 2-1/2 | 30.12 | 42.68 | 43.50 |
| 7/32 | 1/4 | 1/2 | 2-1/2 | 25.00 | 37.40 | 38.90 |
| 1/4 | 1/4 | 1/2 | 2-1/2 | 25.00 | 37.40 | 38.90 |
| 9/32 | 5/16 | 1/2 | 2-1/2 | 32.50 | 48.60 | 49.95 |
| 5/16 | 5/16 | 1/2 | 2-1/2 | 34.30 | 48.60 | 49.95 |
| 3/8 | 3/8 | 9/16 | 2-1/2 | 35.90 | 51.43 | 58.00 |
| 7/16 | 7/16 | 5/8 | 2-3/4 | 51.75 | 71.30 | 78.80 |
| 1/2 | 1/2 | 5/8 | 3 | 62.30 | 81.50 | 88.00 |



SET NO. KD94S

Solid Micrograin Carbide
4 Flute - Double End
6 Piece Set
Contains 1 piece of each:
1/8, 3/16, 1/4, 5/16, 3/8, 1/2
Supplied in wood case
SET PRICE — \$205.65

BALL END

CENTER CUTTING

SINGLE END



- LIST NO. KB92 — TWO FLUTE
- LIST NO. KBT92 — TiN TWO FLUTE
- LIST NO. KB94 — FOUR FLUTE
- LIST NO. KBT94 — TiN FOUR FLUTE

DOUBLE END — STUB LENGTH



- LIST NO. KB82 — TWO FLUTE
- LIST NO. KB84 — FOUR FLUTE

| Dia. of Cut | Shank Dia. | Flute Length | Overall Length | Two or Four Flute Price Each | |
|-------------|------------|--------------|----------------|------------------------------|------------------------|
| | | | | Solid Carbide KB92 KB94 | TiN Coated KBT92 KBT94 |
| 1/64 | 1/8 | 1/32 | 1-1/2 | 22.50 | 24.50 |
| 1/32 | 1/8 | 5/64 | 1-1/2 | 18.95 | 19.90 |
| 3/64 | 1/8 | 9/64 | 1-1/2 | 18.95 | 19.90 |
| 1/16 | 1/8 | 3/16 | 1-1/2 | 14.50 | 15.50 |
| 5/64 | 1/8 | 1/4 | 1-1/2 | 15.60 | 16.70 |
| 3/32 | 1/8 | 3/8 | 1-1/2 | 14.50 | 15.50 |
| 7/64 | 1/8 | 3/8 | 1-1/2 | 15.60 | 16.70 |
| 1/8 | 1/8 | 1/2 | 1-1/2 | 14.50 | 15.50 |
| 9/64 | 3/16 | 1/2 | 2 | 22.00 | 23.50 |
| 5/32 | 3/16 | 9/16 | 2 | 20.00 | 21.50 |
| 11/64 | 3/16 | 9/16 | 2 | 22.00 | 23.50 |
| 3/16 | 3/16 | 5/8 | 2 | 20.70 | 22.50 |
| 13/64 | 1/4 | 5/8 | 2-1/2 | 28.00 | 30.00 |
| 7/32 | 1/4 | 5/8 | 2-1/2 | 26.10 | 28.00 |
| 1/4 | 1/4 | 3/4 | 2-1/2 | 26.30 | 28.00 |
| 9/32 | 5/16 | 3/4 | 2-1/2 | 28.50 | 33.00 |
| 5/16 | 5/16 | 13/16 | 2-1/2 | 29.60 | 34.00 |
| 11/32 | 3/8 | 7/8 | 2-1/2 | 40.50 | 45.00 |
| 3/8 | 3/8 | 7/8 | 2-1/2 | 37.60 | 42.00 |
| 7/16 | 7/16 | 1 | 2-3/4 | 55.25 | 60.00 |
| 1/2 | 1/2 | 1 | 3 | 64.10 | 69.00 |
| 9/16 | 9/16 | 1-1/8 | 3-1/2 | 108.10 | 118.00 |
| 5/8 | 5/8 | 1-1/4 | 3-1/2 | 149.00 | 159.00 |
| 11/16 | 3/4 | 1-3/8 | 4 | 179.60 | 189.00 |
| 3/4 | 3/4 | 1-1/2 | 4 | 179.60 | 189.00 |
| 7/8 | 7/8 | 1-1/2 | 4 | 297.00 | 326.00 |
| 1 | 1 | 1-1/2 | 4 | 310.00 | 329.00 |

| Dia. of Cut | Shank Dia. | Flute Length | Overall Length | Two or Four Flute Price Each | |
|-------------|------------|--------------|----------------|------------------------------|------|
| | | | | KB82 | KB84 |
| 1/32 | 1/8 | 1/16 | 1-1/2 | 23.00 | |
| 3/64 | 1/8 | 3/32 | 1-1/2 | 23.00 | |
| 1/16 | 1/8 | 1/8 | 1-1/2 | 17.20 | |
| 5/64 | 1/8 | 1/8 | 1-1/2 | 17.20 | |
| 3/32 | 1/8 | 3/16 | 1-1/2 | 17.20 | |
| 7/64 | 1/8 | 3/16 | 1-1/2 | 17.20 | |
| 1/8 | 1/8 | 1/4 | 1-1/2 | 16.00 | |
| 9/64 | 3/16 | 5/16 | 2 | 24.50 | |
| 5/32 | 3/16 | 5/16 | 2 | 22.80 | |
| 11/64 | 3/16 | 5/16 | 2 | 28.30 | |
| 3/16 | 3/16 | 3/8 | 2 | 24.25 | |
| 7/32 | 1/4 | 1/2 | 2-1/2 | 32.00 | |
| 1/4 | 1/4 | 1/2 | 2-1/2 | 38.10 | |
| 9/32 | 5/16 | 1/2 | 2-1/2 | 41.10 | |
| 5/16 | 5/16 | 1/2 | 2-1/2 | 43.00 | |
| 3/8 | 3/8 | 9/16 | 2-1/2 | 45.00 | |
| 7/16 | 7/16 | 5/8 | 2-3/4 | 62.25 | |
| 1/2 | 1/2 | 5/8 | 3 | 79.75 | |

SET NO. KB82S

Solid Micrograin Carbide
2 Flute - Ball End
6 Piece Set
Contains 1 piece of each:
1/8, 3/16, 1/4, 5/16, 3/8, 1/2
Supplied in wood case
SET PRICE — \$260.60

SET NO. KB84S

Solid Micrograin Carbide
Four Flute - Ball End
6 Piece Set
Contains 1 piece of each:
1/8, 3/16, 1/4, 5/16, 3/8, 1/2
Supplied in wood case
SET PRICE — \$260.60



MICROGRAIN

SOLID CARBIDE METRIC END MILLS SINGLE END



- LIST NO. KSM92 — TWO FLUTE
- LIST NO. KSM94 — FOUR FLUTE



| Dia. of Cut mm | Shank Dia. mm | Flute Length mm | Two or Four Flute Price Each | |
|----------------|---------------|-----------------|------------------------------|-------------|
| | | | Overall Length mm | KSM92 KSM94 |
| 1.0 | 3 | 4 | 38 | 13.40 |
| 1.5 | 3 | 4.5 | 38 | 13.40 |
| 2.0 | 3 | 6.3 | 38 | 13.40 |
| 2.5 | 3 | 9.5 | 38 | 13.40 |
| 3.0 | 3 | 12 | 38 | 13.40 |
| 3.5 | 4 | 12 | 50 | 17.90 |
| 4.0 | 4 | 14 | 50 | 17.90 |
| 4.5 | 5 | 16 | 50 | 19.75 |
| 5.0 | 5 | 16 | 50 | 19.75 |
| 6.0 | 6 | 19 | 50 | 25.80 |
| 7.0 | 8 | 19 | 63 | 33.00 |

| Dia. of Cut mm | Shank Dia. mm | Flute Length mm | Two or Four Flute Price Each | |
|----------------|---------------|-----------------|------------------------------|-------------|
| | | | Overall Length mm | KSM92 KSM94 |
| 8.0 | 8 | 20 | 63 | 36.40 |
| 9.0 | 10 | 22 | 75 | 49.90 |
| 10.0 | 10 | 22 | 75 | 49.90 |
| 11.0 | 11 | 25 | 75 | 57.00 |
| 12.0 | 12 | 25 | 75 | 68.90 |
| 14.0 | 14 | 32 | 89 | 93.60 |
| 16.0 | 16 | 32 | 89 | 107.90 |
| 18.0 | 18 | 38 | 100 | 152.45 |
| 20.0 | 20 | 38 | 100 | 183.90 |
| 22.0 | 25 | 38 | 100 | 266.70 |
| 25.0 | 25 | 38 | 100 | 284.00 |

MICROGRAIN

SOLID CARBIDE END MILLS SINGLE END

1/8" SHANK — 1-1/2" OVERALL LENGTH

- LIST NO. KSD92 — TWO FLUTE
- LIST NO. KSD94 — FOUR FLUTE



DECIMAL SIZES

| Dia. of Cut | Two or Four Flute Price Each | |
|-------------|------------------------------|-------------|
| | Flute Length | KSD92 KSD94 |
| .010 | .030 | 24.50 |
| .015 | .045 | 19.50 |
| .020 | .060 | 18.90 |
| .025 | .075 | 17.75 |
| .030 | .090 | 17.75 |
| .035 | .105 | 17.75 |
| .040 | .120 | 17.75 |
| .045 | .135 | 14.95 |

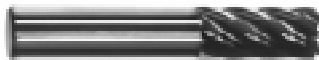
| Dia. of Cut | Two or Four Flute Price Each | |
|-------------|------------------------------|-------------|
| | Flute Length | KSD92 KSD94 |
| .050 | .150 | 14.95 |
| .055 | .165 | 14.95 |
| .060 | .180 | 14.95 |
| .065 | .195 | 14.95 |
| .070 | .210 | 14.95 |
| .075 | .225 | 14.95 |
| .080 | .240 | 14.95 |
| .085 | .255 | 14.95 |

| Dia. of Cut | Two or Four Flute Price Each | |
|-------------|------------------------------|-------------|
| | Flute Length | KSD92 KSD94 |
| .090 | .270 | 14.95 |
| .095 | .285 | 14.95 |
| .100 | .300 | 14.95 |
| .105 | .315 | 14.95 |
| .110 | .330 | 14.95 |
| .115 | .345 | 14.95 |
| .120 | .360 | 14.95 |

PREMIUM MICROGRAIN

SIX FLUTE SOLID CARBIDE END MILLS

- LIST NO. KSD96



The six flute design helps reduce chip load and improve the work piece finish.

| Dia. of Cut | Shank Dia. | Flute Length | Overall Length | Price Each |
|-------------|------------|--------------|----------------|------------|
| 1/8 | 1/8 | 3/8 | 1-1/2 | 20.75 |
| 5/32 | 3/16 | 1/2 | 2 | 28.70 |
| 3/16 | 3/16 | 9/16 | 2 | 29.95 |
| 1/4 | 1/4 | 3/4 | 2-1/2 | 38.90 |
| 5/16 | 5/16 | 13/16 | 2-1/2 | 43.50 |
| 3/8 | 3/8 | 7/8 | 2-1/2 | 55.20 |
| 7/16 | 7/16 | 1 | 2-3/4 | 79.95 |
| 1/2 | 1/2 | 1 | 3 | 92.00 |

MICROGRAIN

THREE FLUTE SOLID CARBIDE END MILLS

- LIST NO. KS9345 — 45° High Helix
- LIST NO. KS9360 — 60° High Helix

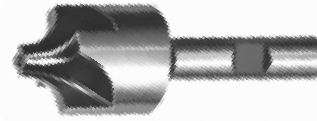


Three cutting edges to reduce vibration and produce better finishes. High shear design is engineered for slotting, plunging and peripheral milling applications.

| Dia. of Cut | Shank Dia. | Flute Length | 45° or 60° Price Each | |
|-------------|------------|--------------|-----------------------|---------------|
| | | | Overall Length | KS9345 KS9360 |
| 1/8 | 1/8 | 1/2 | 1-1/2 | 25.40 |
| 3/16 | 3/16 | 5/8 | 2 | 27.50 |
| 1/4 | 1/4 | 3/4 | 2-1/2 | 29.00 |
| 5/16 | 5/16 | 13/16 | 2-1/2 | 37.00 |
| 3/8 | 3/8 | 7/8 | 2-1/2 | 54.80 |
| 7/16 | 7/16 | 1 | 3 | 78.40 |
| 1/2 | 1/2 | 1 | 3 | 84.50 |
| 5/8 | 5/8 | 1-1/4 | 3-1/2 | 136.00 |
| 3/4 | 3/4 | 1-1/2 | 4 | 199.00 |
| 1 | 1 | 1-1/2 | 4 | 375.00 |

CORNER ROUNDING END MILLS

- LIST NO. 282 — HIGH SPEED
- LIST NO. 282C — COBALT



These End Mills are used for rounding corners and adapting many screw machine applications as end forming tools to form a specific radius. They can be resharpened many times without changing the contour.

| Radius | Shank Diameter | Cutter Diameter | Overall Length | List No. 282 | List No. 282C |
|--------|----------------|-----------------|----------------|--------------|---------------|
| 1/32 | 3/8 | 3/8 | 2-1/2 | 53.80 | — |
| 1/16 | 3/8 | 7/16 | 2-1/2 | 53.80 | 91.50 |
| 3/32 | 3/8 | 1/2 | 2-1/2 | 54.45 | 92.56 |
| 1/8 | 3/8 | 5/8 | 3 | 59.90 | 101.85 |
| 1/8 | 1/2 | 5/8 | 3 | 59.90 | 101.85 |
| 5/32 | 1/2 | 3/4 | 3 | 64.35 | 109.40 |
| 3/16 | 1/2 | 7/8 | 3-1/8 | 68.10 | 115.75 |
| 3/16 | 3/4 | 7/8 | 3-1/8 | 68.10 | 115.75 |
| 1/4 | 1/2 | 1 | 3-1/8 | 73.20 | 124.50 |
| 1/4 | 3/4 | 1 | 3-1/4 | 73.20 | 124.50 |
| 9/32 | 1/2 | 1-1/8 | 3-1/4 | 85.00 | — |
| 5/16 | 1/2 | 1-1/8 | 3-1/4 | 89.44 | 152.90 |
| 5/16 | 3/4 | 1-1/8 | 3-1/4 | 89.94 | 152.90 |
| 5/16 | 7/8 | 1-1/8 | 3-1/2 | 89.94 | 152.90 |
| 3/8 | 1/2 | 1-1/4 | 3-1/2 | 102.00 | 173.40 |
| 3/8 | 3/4 | 1-1/4 | 3-1/2 | 102.00 | 173.40 |

| Radius | Shank Diameter | Cutter Diameter | Overall Length | List No. 282 | List No. 282C |
|--------|----------------|-----------------|----------------|--------------|---------------|
| 3/8 | 7/8 | 1-1/4 | 3-1/4 | 102.00 | 173.40 |
| 7/16 | 3/4 | 1-3/8 | 3-3/4 | 112.31 | 190.90 |
| 7/16 | 1 | 1-3/8 | 4 | 112.31 | 190.90 |
| 15/32 | 3/4 | 1-3/8 | 3-3/4 | 139.50 | — |
| 1/2 | 3/4 | 1-1/2 | 3-7/8 | 139.50 | 237.10 |
| 1/2 | 1 | 1-1/2 | 4-1/8 | 139.50 | 237.10 |
| 9/16 | 3/4 | 1-15/16 | 4 | 167.10 | — |
| 5/8 | 3/4 | 1-15/16 | 4 | 167.10 | 284.00 |
| 5/8 | 1 | 1-15/16 | 4 | 167.10 | — |
| 21/32 | 3/4 | 1-15/16 | 4 | 197.90 | — |
| 3/4 | 3/4 | 2-1/4 | 4-1/8 | 197.90 | 337.40 |
| 3/4 | 1 | 2-1/4 | 4-5/16 | 197.90 | — |
| 13/16 | 1 | 2-1/4 | 4-5/16 | 234.00 | — |
| 1 | 3/4 | 2-1/4 | 4-5/16 | 293.00 | — |
| 1 | 1 | 2-5/8 | 4-1/2 | 315.00 | — |
| 1 | 1 | 2-5/8 | 4-3/4 | 315.00 | — |

Arbor type corner rounding cutters available. Please inquire.

HIGH SPEED STEEL

SETS

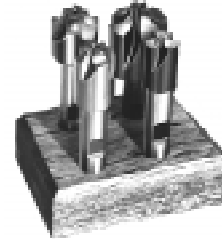
SET NO. 282A

8 Piece Set
Contains 1 piece of each:
1/16, 3/32(x3/8 Shk); 1/8, 5/32, 3/16,
1/4, 5/16, 3/8 (x1/2 Shk)
Supplied in wood block.
SET PRICE — \$559.00



SET NO. 282B

4 Piece Set
Contains 1 piece of each:
1/2, 9/16, 5/8, 3/4 (x3/4 Shk)
Supplied in wood block.
SET PRICE — \$670.90



HIGH SPEED STEEL

SINGLE-END END MILLS FOR ALUMINUM

TWO-FLUTE — HIGH HELIX

- LIST NO. 235 — REGULAR LENGTH
- LIST NO. 236 — LONG FLUTE LENGTH
- LIST NO. 237 — EXTRA LONG FLUTE LENGTH

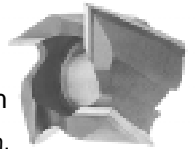


These Endmills are designed to cut aluminum and non-ferrous materials at high material removal rates, therefore, providing better work piece tolerances, surface finishes and cuts without vibration, chatter or scarring.

| Diameter of Cut | Shank Diameter | Regular Length | | | Long Flute Length | | | Extra Long Flute Length | | |
|-----------------|----------------|----------------|----------------|--------------|-------------------|----------------|--------------|-------------------------|----------------|--------------|
| | | Length of Cut | Overall Length | List No. 235 | Length of Cut | Overall Length | List No. 236 | Length of Cut | Overall Length | List No. 237 |
| 1/4 | 3/8 | 5/8 | 2-1/2 | 17.25 | 1-1/4 | 3-1/8 | 20.00 | 1-3/4 | 3-1/2 | 22.55 |
| 5/16 | 3/8 | 3/4 | 2-1/2 | 17.25 | 1-3/8 | 3-1/8 | 20.00 | 2 | 3-3/4 | 23.20 |
| 3/8 | 3/8 | 3/4 | 2-1/2 | 17.25 | 1-1/2 | 3-1/4 | 20.00 | 2-1/2 | 4-1/4 | 24.35 |
| 7/16 | 1/2* | 1 | 2-11/16 | 21.05 | 1-3/4 | 3-1/4 | 26.80 | 2-3/4 | 4-3/4 | 32.50 |
| 1/2 | 1/2 | 1-1/4 | 3-1/4 | 23.40 | 2 | 4 | 27.25 | 3 | 5 | 32.50 |
| 5/8 | 5/8 | 1-5/8 | 3-3/4 | 32.68 | 2-1/2 | 4-5/8 | 36.60 | 4 | 6-1/8 | 45.05 |
| 3/4 | 3/4 | 1-5/8 | 3-7/8 | 34.05 | 3 | 5-1/4 | 47.30 | 4 | 6-1/4 | 64.00 |
| 7/8 | 7/8 | 1-7/8 | 4-1/8 | 49.30 | 3-1/2 | 5-3/4 | 63.00 | 5 | 7-1/4 | 73.85 |
| 1 | 1 | 2 | 4-1/2 | 56.85 | 4 | 6-1/2 | 82.50 | 6 | 8-1/2 | 100.40 |
| 1-1/4 | 1-1/4 | 2 | 4-1/2 | 87.20 | 4 | 6-1/2 | 117.91 | 6 | 8-1/2 | 147.89 |
| 1-1/2 | 1-1/4 | 2 | 4-1/2 | 108.35 | 4 | 6-1/2 | 149.49 | 6 | 8-1/2 | 209.81 |
| 1-3/4 | 1-1/4 | 2 | 4-1/2 | 143.37 | 4 | 6-1/2 | 208.00 | — | — | — |
| 2 | 1-1/4 | 2 | 4-1/2 | 171.53 | 4 | 6-1/2 | 241.02 | — | — | — |

* 3/8 Shank on List No. 235

HIGH SPEED SHELL END MILLS



- LIST NO. 285 — RIGHT HAND
- LIST NO. 285L — LEFT HAND



For facing and slab milling in all types of materials.

| Dia. of Cut | Hole Size | Length of Cut | No. of Flutes | Price Each | |
|-------------|-----------|---------------|---------------|-------------------|--------------------|
| | | | | R.H. List No. 285 | L.H. List No. 285L |
| 1-1/4 | 1/2 | 1 | 8 | 55.40 | 72.00 |
| 1-1/2 | 1/2 | 1-1/8 | 8 | 60.20 | 74.25 |
| 1-3/4 | 3/4 | 1-1/4 | 8 | 73.30 | 94.80 |
| 2 | 3/4 | 1-3/8 | 10 | 82.00 | 112.75 |
| 2-1/4 | 1 | 1-1/2 | 10 | 91.50 | 128.95 |
| 2-1/2 | 1 | 1-5/8 | 10 | 108.25 | 138.00 |
| 2-3/4 | 1 | 1-5/8 | 10 | 135.80 | 180.90 |
| 3 | 1-1/4 | 1-3/4 | 12 | 154.90 | 213.00 |
| 3-1/2 | 1-1/4 | 1-7/8 | 12 | 211.25 | 285.40 |
| 4 | 1-1/2 | 2-1/4 | 14 | 259.60 | 358.50 |
| 4-1/2 | 1-1/2 | 2-1/4 | 14 | 338.80 | 466.00 |
| 5 | 1-1/2 | 2-1/4 | 16 | 402.25 | 600.00 |
| 5-1/2 | 2 | 2-1/4 | 16 | 570.80 | 798.00 |
| 6 | 2 | 2-1/4 | 16 | 592.25 | 875.00 |

- LIST NO. 286 — For Aluminum

For face and slab milling in aluminum.

| Dia. of Cut | Hole Size | Length of Cut | No. of Flutes | Price Each |
|-------------|-----------|---------------|---------------|------------|
| 1-1/4 | 1/2 | 1 | 8 | 59.00 |
| 1-1/2 | 1/2 | 1-1/8 | 8 | 68.00 |
| 1-3/4 | 3/4 | 1-1/4 | 8 | 75.00 |
| 2 | 3/4 | 1-3/8 | 10 | 87.00 |
| 2-1/4 | 1 | 1-1/2 | 10 | 98.00 |
| 2-1/2 | 1 | 1-5/8 | 10 | 120.00 |
| 2-3/4 | 1 | 1-5/8 | 10 | 144.00 |
| 3 | 1-1/4 | 1-3/4 | 12 | 168.00 |
| 3-1/2 | 1-1/4 | 1-7/8 | 12 | 240.00 |
| 4 | 1-1/2 | 2-1/4 | 14 | 270.00 |
| 4-1/2 | 1-1/2 | 2-1/4 | 14 | 350.00 |
| 5 | 1-1/2 | 2-1/4 | 16 | 488.00 |
| 5-1/2 | 2 | 2-1/4 | 16 | 640.00 |
| 6 | 2 | 2-1/4 | 16 | 738.00 |

COBALT ROUGHING SHELL END MILLS

COBALT SHELL END MILLS

- LIST NO. 285C



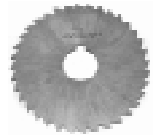
| Dia. of Cut | Hole Size | Length of Cut | No. of Flutes | Price Each |
|-------------|-----------|---------------|---------------|------------|
| 1-1/4 | 1/2 | 1 | 8 | 77.50 |
| 1-1/2 | 1/2 | 1-1/8 | 8 | 79.50 |
| 1-3/4 | 3/4 | 1-1/4 | 8 | 105.85 |
| 2 | 3/4 | 1-3/8 | 10 | 118.90 |
| 2-1/4 | 1 | 1-1/2 | 10 | 133.40 |
| 2-1/2 | 1 | 1-5/8 | 10 | 156.60 |
| 2-3/4 | 1 | 1-5/8 | 10 | 197.00 |
| 3 | 1-1/4 | 1-3/4 | 12 | 224.75 |
| 3-1/2 | 1-1/4 | 1-7/8 | 12 | 305.95 |
| 4 | 1-1/2 | 2-1/4 | 14 | 377.00 |
| 4-1/2 | 1-1/2 | 2-1/4 | 14 | 491.55 |
| 5 | 1-1/2 | 2-1/4 | 16 | 625.00 |
| 5-1/2 | 2 | 2-1/4 | 16 | 825.00 |
| 6 | 2 | 2-1/4 | 16 | 998.00 |

For deep slotting or heavy side cuts. Recommended for general purpose applications in steel.

| Dia. of Cut | Hole Size | Length of Cut | No. of Flutes | Tool Number | Price Each |
|-------------|-----------|---------------|---------------|-------------|------------|
| 2 | 3/4 | 2 | 7 | CS64-16 | 162.00 |
| 2-1/4 | 1 | 2 | 8 | CS72-16 | 190.00 |
| 2-1/2 | 1 | 2 | 8 | CS80-16 | 253.00 |
| 2-3/4 | 1 | 2 | 8 | CS88-16 | 260.00 |
| 3 | 1-1/4 | 2 | 8 | CS96-16 | 294.00 |
| 3-1/2 | 1-1/4 | 2 | 9 | CS112-16 | 390.00 |
| 4 | 1-1/2 | 2-1/4 | 10 | CS128-18 | 481.00 |
| 4-1/2 | 1-1/2 | 2-1/4 | 12 | CS144-18 | 598.00 |
| 5 | 1-1/2 | 2-1/4 | 12 | CS160-18 | 760.00 |
| 5-1/2 | 2 | 2-1/4 | 14 | CS176-18 | 947.00 |
| 6 | 2 | 2-1/4 | 14 | CS192-18 | 1065.00 |

HIGH SPEED STEEL

PLAIN METAL SLITTING SAWS



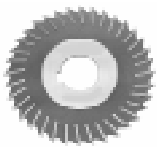
- LIST NO. 738

For general purpose slitting or cutting-off operations.

| Diameter | Width of Face | Hole Size | Price Each |
|----------|---------------|-----------|------------|
| 1-3/4 | 1/32 | 1/2 | 19.90 |
| 1-3/4 | 1/8 | 1/2 | 19.90 |
| 1-3/4 | 1/16 | 1/2 | 19.90 |
| 2 | 1/32 | 1/2 | 19.90 |
| 2 | 1/16 | 1/2 | 22.00 |
| 2 | 3/32 | 1/2 | 24.50 |
| 2 | 1/8 | 1/2 | 25.90 |
| 2 | 5/32 | 1/2 | 25.90 |
| 2-1/2 | 1/32 | 7/8 | 28.40 |
| 2-1/2 | 3/64 | 7/8 | 28.40 |
| 2-1/2 | 1/16 | 7/8 | 28.40 |
| 2-1/2 | 5/64 | 1 | 28.40 |
| 2-1/2 | 3/32 | 7/8 | 28.40 |
| 2-1/2 | 3/32 | 1 | 28.40 |
| 2-1/2 | 7/64 | 1 | 28.40 |
| 2-1/2 | 1/8 | 7/8 | 31.00 |
| 2-1/2 | 3/16 | 7/8 | 31.00 |
| 2-1/2 | 3/16 | 1 | 31.00 |
| 3 | 1/32 | 1 | 32.75 |
| 3 | 3/64 | 1 | 32.75 |

| Diameter | Width of Face | Hole Size | Price Each |
|----------|---------------|-----------|------------|
| 3 | 1/16 | 1 | 34.00 |
| 3 | 3/32 | 1 | 34.00 |
| 3 | 7/64 | 1 | 34.00 |
| 3 | 1/8 | 1 | 35.00 |
| 3 | 9/64 | 1 | 35.00 |
| 3 | 5/32 | 1 | 36.95 |
| 3 | 3/16 | 1 | 36.95 |
| 3 | 7/32 | 1 | 38.95 |
| 4 | 1/32 | 1 | 45.75 |
| 4 | 3/64 | 1 | 46.50 |
| 4 | 1/16 | 1 | 47.15 |
| 4 | 3/32 | 1 | 49.80 |
| 4 | 7/64 | 1 | 49.80 |
| 4 | 1/8 | 1 | 52.60 |
| 4 | 9/64 | 1 | 54.60 |
| 4 | 5/32 | 1 | 54.60 |
| 4 | 3/16 | 1 | 57.70 |
| 5 | 3/32 | 1 | 69.50 |
| 5 | 7/64 | 1 | 75.50 |
| 5 | 1/8 | 1-1/4 | 75.50 |

| Diameter | Face Width | Hole Size | Price Each |
|----------|------------|-----------|------------|
| 5 | 1/8 | 1 | 75.50 |
| 5 | 5/32 | 1 | 78.25 |
| 5 | 3/16 | 1 | 78.25 |
| 5 | 3/16 | 1-1/4 | 78.25 |
| 5 | 7/32 | 1 | 78.25 |
| 5 | 1/4 | 1 | 79.90 |
| 6 | 1/16 | 1 | 79.90 |
| 6 | 1/16 | 1-1/4 | 79.90 |
| 6 | 3/32 | 1 | 91.50 |
| 6 | 3/32 | 1-1/4 | 91.50 |
| 6 | 1/8 | 1 | 94.35 |
| 6 | 1/8 | 1-1/4 | 94.35 |
| 6 | 3/16 | 1 | 112.50 |
| 6 | 3/16 | 1-1/4 | 112.50 |
| 8 | 1/8 | 1 | 195.30 |
| 8 | 1/8 | 1-1/4 | 195.30 |
| 8 | 3/16 | 1-1/4 | 233.00 |
| 10 | 1/8 | 1-1/4 | 306.00 |
| 10 | 3/16 | 1-1/4 | 350.00 |
| 10 | 1/4 | 1-1/4 | 350.00 |



HIGH SPEED STEEL

SIDE CHIP CLEARANCE METAL SLITTING SAWS

STRAIGHT TEETH

● LIST NO. 739S

The side chip clearance allows cut-off or slotting operations of considerable depth.

| Diameter | Face Width | Hole Size | Price Each |
|----------|------------|-----------|------------|
| 2 | 3/32 | 5/8 | 34.25 |
| 2 | 1/8 | 5/8 | 34.25 |
| 2 | 5/32 | 5/8 | 34.25 |
| 2-1/2 | 1/16 | 7/8 | 43.72 |
| 2-1/2 | 3/32 | 7/8 | 43.72 |
| 2-1/2 | 1/8 | 7/8 | 43.72 |
| 2-1/2 | 1/8 | 1 | 43.72 |
| 3 | 1/16 | 1 | 50.44 |
| 3 | 5/64 | 1 | 50.44 |
| 3 | 3/32 | 1 | 50.44 |
| 3 | 7/64 | 1 | 50.44 |
| 3 | 1/8 | 1 | 50.44 |
| 3 | 9/64 | 1 | 50.44 |
| 3 | 5/32 | 1 | 50.44 |
| 3 | 11/64 | 1 | 50.44 |
| 3 | 3/16 | 1 | 50.44 |
| 3 | 1/4 | 1 | 50.44 |
| 4 | 1/16 | 1 | 67.16 |
| 4 | 5/64 | 1 | 67.16 |
| 4 | 3/32 | 1 | 67.16 |
| 4 | 3/32 | 1-1/4 | 67.16 |
| 4 | 7/64 | 1 | 67.16 |
| 4 | 1/8 | 1 | 67.16 |
| 4 | 1/8 | 1-1/4 | 67.16 |
| 4 | 5/32 | 1 | 70.08 |
| 4 | 11/64 | 1 | 70.08 |
| 4 | 3/16 | 1 | 73.00 |
| 4 | 3/16 | 1-1/4 | 73.00 |
| 4 | 7/32 | 1 | 73.00 |
| 4 | 1/4 | 1 | 73.00 |
| 5 | 1/16 | 1 | 86.88 |

| Diameter | Face Width | Hole Size | Price Each |
|----------|------------|-----------|------------|
| 5 | 1/16 | 1-1/4 | 86.88 |
| 5 | 3/32 | 1 | 89.20 |
| 5 | 3/32 | 1-1/4 | 89.20 |
| 5 | 1/8 | 1 | 91.46 |
| 5 | 1/8 | 1-1/4 | 91.46 |
| 5 | 5/32 | 1 | 94.38 |
| 5 | 5/32 | 1-1/4 | 94.38 |
| 5 | 11/64 | 1 | 98.42 |
| 5 | 3/16 | 1 | 98.42 |
| 5 | 3/16 | 1-1/4 | 98.42 |
| 6 | 1/16 | 1 | 149.75 |
| 6 | 1/16 | 1-1/4 | 149.75 |
| 6 | 3/32 | 1 | 112.34 |
| 6 | 3/32 | 1-1/4 | 112.34 |
| 6 | 1/8 | 1 | 117.00 |
| 6 | 1/8 | 1-1/4 | 117.00 |
| 6 | 5/32 | 1 | 130.84 |
| 6 | 5/32 | 1-1/4 | 130.84 |
| 6 | 3/16 | 1 | 130.84 |
| 6 | 3/16 | 1-1/4 | 130.84 |
| 8 | 1/8 | 1 | 237.10 |
| 8 | 1/8 | 1-1/4 | 237.10 |
| 8 | 3/16 | 1-1/4 | 256.36 |
| 10 | 1/8 | 1-1/4 | 456.00 |
| 10 | 3/16 | 1-1/4 | 456.00 |
| 10 | 1/4 | 1-1/4 | 456.00 |
| 12 | 1/8 | 1-1/4 | 725.00 |
| 12 | 1/8 | 1-1/2 | 725.00 |
| 12 | 3/16 | 1-1/4 | 725.00 |
| 12 | 3/16 | 1-1/2 | 725.00 |
| 12 | 1/4 | 1-1/2 | 725.00 |

HIGH SPEED STEEL

SIDE CHIP CLEARANCE METAL SLITTING SAWS

STAGGERED TEETH

● LIST NO. 739ST

For making deeper cuts with coarser feeds in heavy duty slotting operations.

| Diameter | Face Width | Hole Size | Price Each |
|----------|------------|-----------|------------|
| 3 | 1/16 | 1 | 59.50 |
| 3 | 3/32 | 1 | 59.50 |
| 3 | 7/64 | 1 | 59.50 |
| 3 | 1/8 | 1 | 59.50 |
| 3 | 9/64 | 1 | 59.50 |
| 3 | 5/32 | 1 | 59.50 |
| 3 | 11/64 | 1 | 59.50 |
| 3 | 3/16 | 1 | 60.78 |
| 3 | 1/4 | 1 | 62.98 |
| 4 | 3/32 | 1 | 79.90 |
| 4 | 3/32 | 1-1/4 | 79.90 |
| 4 | 7/64 | 1 | 79.90 |
| 4 | 7/64 | 1-1/4 | 79.90 |
| 4 | 1/8 | 1 | 79.90 |
| 4 | 1/8 | 1-1/4 | 79.90 |
| 4 | 9/64 | 1 | 84.00 |
| 4 | 5/32 | 1 | 84.00 |
| 4 | 5/32 | 1-1/4 | 84.00 |
| 4 | 11/64 | 1 | 84.00 |
| 4 | 3/16 | 1 | 84.00 |
| 4 | 7/32 | 1 | 90.00 |
| 4 | 1/4 | 1 | 90.00 |
| 4 | 1/4 | 1-1/4 | 90.00 |
| 5 | 1/8 | 1 | 98.78 |

| Diameter | Face Width | Hole Size | Price Each |
|----------|------------|-----------|------------|
| 5 | 1/8 | 1-1/4 | 98.78 |
| 5 | 5/32 | 1 | 103.39 |
| 5 | 3/16 | 1 | 109.80 |
| 5 | 3/16 | 1-1/4 | 109.80 |
| 5 | 7/32 | 1 | 114.72 |
| 5 | 1/4 | 1 | 114.72 |
| 6 | 1/8 | 1 | 135.00 |
| 6 | 1/8 | 1-1/4 | 135.00 |
| 6 | 5/32 | 1 | 139.40 |
| 6 | 5/32 | 1-1/4 | 139.40 |
| 6 | 3/16 | 1 | 151.04 |
| 6 | 3/16 | 1-1/4 | 151.04 |
| 6 | 1/4 | 1 | 154.56 |
| 6 | 1/4 | 1-1/4 | 154.56 |
| 8 | 3/16 | 1-1/4 | 283.20 |
| 8 | 1/4 | 1-1/4 | 291.20 |
| 10 | 3/16 | 1-1/4 | 502.40 |
| 10 | 1/4 | 1-1/4 | 468.80 |
| 12 | 1/8 | 1-1/4 | 802.40 |
| 12 | 1/8 | 1-1/2 | 802.40 |
| 12 | 3/16 | 1-1/4 | 802.40 |
| 12 | 3/16 | 1-1/2 | 802.40 |
| 12 | 1/4 | 1-1/2 | 802.40 |
| 12 | 5/16 | 1-1/2 | 895.78 |

JEWELERS SLOTTING SAWS

● LIST NO. 728



For slotting and grooving very thin material or cutting off wire, thin tubing, sheeting, extrusions or other thin materials.

| Saw Diameter | Face Width | Number of teeth | Hole Size | Price Each |
|--------------|------------|-----------------|-----------|------------|
| 1 | .008 | 99 | 3/8 | 15.48 |
| 1 | .010 | 99 | 3/8 | 12.00 |
| 1 | .012 | 99 | 3/8 | 12.00 |
| 1 | .014 | 75 | 3/8 | 11.04 |
| 1 | .016 | 75 | 3/8 | 10.44 |
| 1 | .018 | 75 | 3/8 | 9.48 |
| 1 | .020 | 75 | 3/8 | 9.48 |
| 1 | .023 | 75 | 3/8 | 8.64 |
| 1 | .025 | 75 | 3/8 | 8.64 |
| 1 | .028 | 75 | 3/8 | 10.44 |
| 1 | .032 | 75 | 3/8 | 10.44 |
| 1-1/4 | .008 | 120 | 3/8 | 18.24 |
| 1-1/4 | .010 | 120 | 3/8 | 16.68 |
| 1-1/4 | .012 | 120 | 3/8 | 16.68 |
| 1-1/4 | .013 | 120 | 3/8 | 12.96 |
| 1-1/4 | .014 | 99 | 3/8 | 12.96 |
| 1-1/4 | .016 | 99 | 3/8 | 12.96 |
| 1-1/4 | .018 | 99 | 3/8 | 12.00 |
| 1-1/4 | .020 | 99 | 3/8 | 11.04 |
| 1-1/4 | .023 | 99 | 3/8 | 10.44 |
| 1-1/4 | .025 | 99 | 3/8 | 10.44 |
| 1-1/4 | .028 | 99 | 3/8 | 11.04 |
| 1-1/4 | .032 | 99 | 3/8 | 11.04 |
| 1-1/2 | .008 | 140 | 1/2 | 22.56 |
| 1-1/2 | .010 | 140 | 1/2 | 22.56 |
| 1-1/2 | .012 | 140 | 1/2 | 15.48 |
| 1-1/2 | .013 | 140 | 1/2 | 15.48 |
| 1-1/2 | .014 | 110 | 1/2 | 14.40 |
| 1-1/2 | .016 | 110 | 1/2 | 13.44 |
| 1-1/2 | .018 | 110 | 1/2 | 12.96 |
| 1-1/2 | .020 | 110 | 1/2 | 12.00 |
| 1-1/2 | .023 | 110 | 1/2 | 12.00 |
| 1-1/2 | .025 | 110 | 1/2 | 12.00 |
| 1-1/2 | .028 | 110 | 1/2 | 12.00 |
| 1-1/2 | .032 | 110 | 1/2 | 13.68 |
| 1-3/4 | .008 | 160 | 1/2 | 24.24 |
| 1-3/4 | .010 | 160 | 1/2 | 22.56 |
| 1-3/4 | .012 | 160 | 1/2 | 19.80 |
| 1-3/4 | .014 | 132 | 1/2 | 15.96 |
| 1-3/4 | .016 | 132 | 1/2 | 15.48 |
| 1-3/4 | .018 | 132 | 1/2 | 14.40 |
| 1-3/4 | .020 | 132 | 1/2 | 13.44 |
| 1-3/4 | .023 | 132 | 1/2 | 12.00 |
| 1-3/4 | .025 | 132 | 1/2 | 12.00 |
| 1-3/4 | .028 | 132 | 1/2 | 12.96 |

| Saw Diameter | Face Width | Number of teeth | Hole Size | Price Each |
|--------------|------------|-----------------|-----------|------------|
| 1-3/4 | .032 | 132 | 1/2 | 12.96 |
| 2 | .008 | 190 | 1/2 | 28.08 |
| 2 | .010 | 190 | 1/2 | 27.00 |
| 2 | .012 | 190 | 1/2 | 25.20 |
| 2 | .014 | 152 | 1/2 | 19.80 |
| 2 | .016 | 152 | 1/2 | 18.36 |
| 2 | .018 | 152 | 1/2 | 16.44 |
| 2 | .020 | 152 | 1/2 | 15.48 |
| 2 | .023 | 152 | 1/2 | 14.40 |
| 2 | .025 | 152 | 1/2 | 15.48 |
| 2 | .028 | 152 | 1/2 | 15.48 |
| 2 | .032 | 110 | 1/2 | 15.48 |
| 2 | .035 | 110 | 1/2 | 15.48 |
| 2 | .036 | 110 | 1/2 | 24.72 |
| 2 | .040 | 110 | 1/2 | 16.44 |
| 2 | .045 | 110 | 1/2 | 16.44 |
| 2 | .051 | 110 | 1/2 | 18.36 |
| 2 | .057 | 110 | 1/2 | 18.36 |
| 2-1/4 | .010 | 210 | 1/2 | 34.08 |
| 2-1/4 | .012 | 210 | 1/2 | 27.72 |
| 2-1/4 | .014 | 210 | 1/2 | 27.72 |
| 2-1/4 | .018 | 210 | 1/2 | 19.80 |
| 2-1/2 | .010 | 240 | 1/2 | 34.08 |
| 2-1/2 | .012 | 240 | 1/2 | 29.76 |
| 2-1/2 | .013 | 240 | 1/2 | 29.76 |
| 2-1/2 | .014 | 190 | 1/2 | 27.00 |
| 2-1/2 | .016 | 190 | 1/2 | 22.32 |
| 2-1/2 | .018 | 190 | 1/2 | 18.96 |
| 2-1/2 | .020 | 190 | 1/2 | 17.76 |
| 2-1/2 | .023 | 190 | 1/2 | 16.44 |
| 2-1/2 | .025 | 190 | 1/2 | 16.44 |
| 2-1/2 | .028 | 190 | 1/2 | 18.36 |
| 2-1/2 | .032 | 140 | 1/2 | 18.36 |
| 2-1/2 | .035 | 140 | 1/2 | 19.80 |
| 2-1/2 | .040 | 140 | 1/2 | 20.88 |
| 2-1/2 | .045 | 140 | 1/2 | 20.88 |
| 2-1/2 | .051 | 140 | 1/2 | 22.32 |
| 2-1/2 | .057 | 140 | 1/2 | 22.32 |
| 3 | .010 | 280 | 1 | 39.12 |
| 3 | .012 | 280 | 1 | 34.80 |
| 3 | .013 | 280 | 1 | 34.80 |
| 3 | .014 | 230 | 1 | 34.80 |
| 3 | .016 | 230 | 1 | 29.76 |
| 3 | .018 | 230 | 1 | 26.52 |
| 3 | .020 | 230 | 1 | 21.84 |

| Saw Diameter | Face Width | Number of teeth | Hole Size | Price Each |
|--------------|------------|-----------------|-----------|------------|
| 3 | .023 | 230 | 1 | 19.80 |
| 3 | .025 | 230 | 1 | 19.80 |
| 3 | .028 | 230 | 1 | 22.32 |
| 3 | .032 | 168 | 1 | 22.32 |
| 3 | .035 | 168 | 1 | 24.72 |
| 3 | .040 | 168 | 1 | 24.72 |
| 3 | .045 | 168 | 1 | 24.72 |
| 3 | .051 | 168 | 1 | 26.28 |
| 3 | .057 | 168 | 1 | 26.28 |
| 4 | .016 | 310 | 1 | 50.88 |
| 4 | .018 | 310 | 1 | 47.40 |
| 4 | .020 | 310 | 1 | 45.12 |
| 4 | .023 | 310 | 1 | 36.12 |
| 4 | .025 | 310 | 1 | 33.24 |
| 4 | .028 | 310 | 1 | 33.24 |
| 4 | .032 | 220 | 1 | 36.12 |
| 4 | .035 | 220 | 1 | 37.56 |
| 4 | .040 | 220 | 1 | 37.56 |
| 4 | .045 | 220 | 1 | 41.52 |
| 4 | .051 | 220 | 1 | 41.52 |
| 4 | .057 | 220 | 1 | 42.36 |
| 4 | .064 | 220 | 1 | 42.36 |
| 5 | .025 | 280 | 1 | 60.48 |
| 5 | .028 | 280 | 1 | 60.48 |
| 5 | .032 | 280 | 1 | 51.12 |
| 5 | .035 | 280 | 1 | 51.12 |
| 5 | .036 | 280 | 1 | 51.12 |
| 5 | .040 | 280 | 1 | 51.12 |
| 5 | .045 | 280 | 1 | 57.36 |
| 5 | .051 | 280 | 1 | 57.36 |
| 5 | .057 | 280 | 1 | 59.04 |
| 5 | .064 | 280 | 1 | 59.04 |
| 6 | .035 | 340 | 1 | 82.56 |
| 6 | .040 | 340 | 1 | 82.56 |
| 6 | .045 | 340 | 1 | 74.64 |
| 6 | .051 | 232 | 1 | 82.56 |
| 6 | .057 | 232 | 1 | 82.56 |
| 6 | .064 | 232 | 1 | 82.56 |
| 6 | .072 | 232 | 1 | 85.44 |
| 6 | .081 | 232 | 1 | 85.44 |
| 6 | .091 | 232 | 1 | 92.88 |
| 6 | .102 | 232 | 1 | 103.68 |
| 6 | .114 | 232 | 1 | 150.00 |
| 6 | .128 | 232 | 1 | 164.16 |

SCREW SLOTTING SAWS

● LIST NO. 729

For slotting and cut-off applications.



| Saw Diameter | Face Width | Hole Size | Price Each |
|--------------|------------|-----------|------------|
| 1-3/4 | .006 | 5/8 | 21.84 |
| 1-3/4 | .008 | 5/8 | 21.84 |
| 1-3/4 | .010 | 5/8 | 20.52 |
| 1-3/4 | .012 | 5/8 | 18.48 |
| 1-3/4 | .014 | 5/8 | 15.00 |
| 1-3/4 | .016 | 5/8 | 14.64 |
| 1-3/4 | .018 | 5/8 | 14.16 |
| 1-3/4 | .020 | 5/8 | 13.68 |
| 1-3/4 | .023 | 5/8 | 13.68 |
| 1-3/4 | .025 | 5/8 | 13.68 |
| 1-3/4 | .028 | 5/8 | 13.68 |
| 1-3/4 | .032 | 5/8 | 13.68 |
| 1-3/4 | .036 | 5/8 | 14.16 |
| 1-3/4 | .040 | 5/8 | 14.16 |
| 1-3/4 | .045 | 5/8 | 14.16 |
| 1-3/4 | .051 | 5/8 | 14.16 |
| 1-3/4 | .057 | 5/8 | 15.00 |
| 1-3/4 | .064 | 5/8 | 15.96 |
| 1-3/4 | .072 | 5/8 | 15.96 |
| 2-1/4 | .006 | 5/8 | 22.80 |
| 2-1/4 | .008 | 5/8 | 22.80 |
| 2-1/4 | .010 | 5/8 | 30.24 |
| 2-1/4 | .012 | 5/8 | 25.68 |
| 2-1/4 | .014 | 5/8 | 21.72 |
| 2-1/4 | .016 | 5/8 | 21.72 |
| 2-1/4 | .018 | 5/8 | 18.00 |
| 2-1/4 | .020 | 5/8 | 18.00 |
| 2-1/4 | .023 | 5/8 | 18.00 |
| 2-1/4 | .025 | 5/8 | 18.00 |

| Saw Diameter | Face Width | Hole Size | Price Each |
|--------------|------------|-----------|------------|
| 2-1/4 | .028 | 5/8 | 17.04 |
| 2-1/4 | .032 | 5/8 | 17.04 |
| 2-1/4 | .035 | 5/8 | 17.04 |
| 2-1/4 | .036 | 5/8 | 17.04 |
| 2-1/4 | .040 | 5/8 | 18.00 |
| 2-1/4 | .045 | 5/8 | 18.96 |
| 2-1/4 | .051 | 5/8 | 18.96 |
| 2-1/4 | .057 | 5/8 | 18.96 |
| 2-1/4 | .064 | 5/8 | 18.96 |
| 2-1/4 | .072 | 5/8 | 18.96 |
| 2-1/4 | .081 | 5/8 | 20.28 |
| 2-1/4 | .091 | 5/8 | 21.84 |
| 2-1/4 | .102 | 5/8 | 23.76 |
| 2-3/4 | .020 | 3/4 | 18.96 |
| 2-3/4 | .023 | 3/4 | 18.96 |
| 2-3/4 | .025 | 3/4 | 18.96 |
| 2-3/4 | .028 | 3/4 | 18.96 |
| 2-3/4 | .032 | 3/4 | 18.96 |
| 2-3/4 | .036 | 3/4 | 18.96 |
| 2-3/4 | .040 | 3/4 | 18.96 |
| 2-3/4 | .045 | 3/4 | 22.80 |
| 2-3/4 | .051 | 3/4 | 22.80 |
| 2-3/4 | .057 | 3/4 | 22.80 |
| 2-3/4 | .064 | 3/4 | 22.80 |
| 2-3/4 | .072 | 3/4 | 22.80 |
| 2-3/4 | .081 | 3/4 | 26.52 |
| 2-3/4 | .091 | 3/4 | 28.56 |
| 2-3/4 | .102 | 3/4 | 30.00 |
| 2-3/4 | .114 | 3/4 | 30.96 |

| Saw Diameter | Face Width | Hole Size | Price Each |
|--------------|------------|-----------|------------|
| 2-3/4 | .128 | 3/4 | 30.96 |
| 2-3/4 | .006 | 1 | 36.60 |
| 2-3/4 | .010 | 1 | 33.36 |
| 2-3/4 | .012 | 1 | 31.32 |
| 2-3/4 | .013 | 1 | 31.32 |
| 2-3/4 | .014 | 1 | 29.04 |
| 2-3/4 | .016 | 1 | 27.48 |
| 2-3/4 | .018 | 1 | 18.96 |
| 2-3/4 | .020 | 1 | 18.96 |
| 2-3/4 | .023 | 1 | 18.96 |
| 2-3/4 | .025 | 1 | 18.96 |
| 2-3/4 | .028 | 1 | 18.96 |
| 2-3/4 | .032 | 1 | 18.96 |
| 2-3/4 | .036 | 1 | 18.96 |
| 2-3/4 | .040 | 1 | 18.96 |
| 2-3/4 | .045 | 1 | 22.80 |
| 2-3/4 | .051 | 1 | 22.80 |
| 2-3/4 | .057 | 1 | 22.80 |
| 2-3/4 | .064 | 1 | 22.80 |
| 2-3/4 | .072 | 1 | 22.80 |
| 2-3/4 | .081 | 1 | 26.52 |
| 2-3/4 | .091 | 1 | 28.56 |
| 2-3/4 | .102 | 1 | 30.04 |
| 2-3/4 | .114 | 1 | 30.96 |
| 2-3/4 | .128 | 1 | 31.92 |
| 2-3/4 | .144 | 1 | 36.72 |
| 2-3/4 | .162 | 1 | 40.08 |
| 2-3/4 | .182 | 1 | 46.92 |



SIDE MILLING CUTTERS

STRAIGHT TEETH

For slotting and light duty side milling. These cutters can be ganged or used as straddle mills.

● LIST NO. 740

| Cutter Dia. | Face Width | Hole Size | Price Each |
|-------------|------------|-----------|------------|
| 2 | 3/16 | 1/2 | 41.75 |
| 2 | 3/16 | 5/8 | 41.75 |
| 2 | 1/4 | 1/2 | 41.75 |
| 2 | 1/4 | 5/8 | 37.89 |
| 2 | 3/8 | 1/2 | 41.75 |
| 2 | 3/8 | 5/8 | 41.75 |
| 2-1/2 | 1/4 | 7/8 | 50.95 |
| 2-1/2 | 5/16 | 7/8 | 52.11 |
| 2-1/2 | 3/8 | 7/8 | 56.82 |
| 2-1/2 | 3/8 | 1 | 56.82 |
| 2-1/2 | 1/2 | 7/8 | 57.85 |
| 2-1/2 | 1/2 | 1 | 57.85 |
| 2-1/2 | 5/8 | 1 | 67.00 |
| 3 | 3/16 | 1 | 49.99 |
| 3 | 3/16 | 1-1/4 | 50.50 |
| 3 | 7/32 | 1 | 54.09 |
| 3 | 7/32 | 1-1/4 | 52.20 |
| 3 | 1/4 | 1 | 58.75 |
| 3 | 1/4 | 1-1/4 | 58.75 |
| 3 | 9/32 | 1 | 60.55 |
| 3 | 9/32 | 1-1/4 | 60.55 |
| 3 | 5/16 | 1 | 61.79 |
| 3 | 5/16 | 1-1/4 | 61.79 |
| 3 | 3/8 | 1 | 65.65 |
| 3 | 3/8 | 1-1/4 | 65.65 |
| 3 | 13/32 | 1 | 67.50 |
| 3 | 13/32 | 1-1/4 | 67.50 |
| 3 | 7/16 | 1 | 69.60 |
| 3 | 7/16 | 1-1/4 | 69.60 |
| 3 | 1/2 | 1 | 70.55 |
| 3 | 1/2 | 1-1/4 | 70.55 |
| 3 | 9/16 | 1 | 72.10 |
| 3 | 9/16 | 1-1/4 | 72.10 |
| 3 | 5/8 | 1 | 74.25 |
| 3 | 5/8 | 1-1/4 | 74.25 |
| 3 | 11/16 | 1 | 78.50 |
| 3 | 11/16 | 1-1/4 | 78.50 |
| 3 | 3/4 | 1 | 80.15 |
| 3 | 3/4 | 1-1/4 | 80.15 |
| 3 | 13/16 | 1 | 95.82 |
| 3 | 13/16 | 1-1/4 | 95.82 |
| 3 | 7/8 | 1 | 115.40 |
| 3 | 7/8 | 1-1/4 | 115.40 |
| 3 | 15/16 | 1 | 120.75 |
| 3 | 15/16 | 1-1/4 | 120.75 |
| 3 | 1 | 1 | 127.10 |
| 3 | 1 | 1-1/4 | 127.10 |
| 3-1/2 | 3/16 | 1 | 69.00 |
| 3-1/2 | 1/4 | 1 | 69.22 |
| 3-1/2 | 5/16 | 1-1/4 | 76.00 |
| 3-1/2 | 3/8 | 1 | 79.60 |
| 3-1/2 | 7/16 | 1-1/4 | 80.45 |
| 3-1/2 | 1/2 | 1 | 85.00 |
| 3-1/2 | 1/2 | 1-1/4 | 85.00 |
| 3-1/2 | 5/8 | 1 | 92.80 |

| Cutter Dia. | Face Width | Hole Size | Price Each |
|-------------|------------|-----------|------------|
| 4 | 3/16 | 1 | 72.50 |
| 4 | 3/16 | 1-1/4 | 72.50 |
| 4 | 7/32 | 1 | 75.80 |
| 4 | 7/32 | 1-1/4 | 75.80 |
| 4 | 1/4 | 1 | 79.50 |
| 4 | 1/4 | 1-1/4 | 79.50 |
| 4 | 9/32 | 1 | 80.00 |
| 4 | 9/32 | 1-1/4 | 80.00 |
| 4 | 5/16 | 1 | 80.15 |
| 4 | 5/16 | 1-1/4 | 80.15 |
| 4 | 11/32 | 1 | 86.12 |
| 4 | 11/32 | 1-1/4 | 86.12 |
| 4 | 3/8 | 1 | 91.10 |
| 4 | 3/8 | 1-1/4 | 91.10 |
| 4 | 13/32 | 1 | 91.10 |
| 4 | 13/32 | 1-1/4 | 91.10 |
| 4 | 7/16 | 1 | 91.95 |
| 4 | 7/16 | 1-1/4 | 91.95 |
| 4 | 1/2 | 1 | 101.45 |
| 4 | 1/2 | 1-1/4 | 101.45 |
| 4 | 9/16 | 1 | 101.89 |
| 4 | 9/16 | 1-1/4 | 101.89 |
| 4 | 5/8 | 1 | 113.20 |
| 4 | 5/8 | 1-1/4 | 113.20 |
| 4 | 11/16 | 1 | 110.10 |
| 4 | 11/16 | 1-1/4 | 110.10 |
| 4 | 3/4 | 1 | 120.11 |
| 4 | 3/4 | 1-1/4 | 120.11 |
| 4 | 13/16 | 1 | 122.83 |
| 4 | 13/16 | 1-1/4 | 122.83 |
| 4 | 7/8 | 1 | 132.93 |
| 4 | 7/8 | 1-1/4 | 132.93 |
| 4 | 15/16 | 1 | 138.60 |
| 4 | 15/16 | 1-1/4 | 138.60 |
| 4 | 1 | 1 | 155.80 |
| 4 | 1 | 1-1/4 | 155.80 |
| 4-1/2 | 3/8 | 1-1/4 | 129.00 |
| 4-1/2 | 7/16 | 1-1/4 | 129.00 |
| 4-1/2 | 1/2 | 1-1/4 | 135.00 |
| 5 | 1/4 | 1 | 115.00 |
| 5 | 1/4 | 1-1/4 | 115.00 |
| 5 | 9/32 | 1 | 120.00 |
| 5 | 9/32 | 1-1/4 | 120.00 |
| 5 | 5/16 | 1 | 122.81 |
| 5 | 5/16 | 1-1/4 | 122.81 |
| 5 | 11/32 | 1 | 124.85 |
| 5 | 11/32 | 1-1/4 | 124.85 |
| 5 | 3/8 | 1 | 135.09 |
| 5 | 3/8 | 1-1/4 | 135.09 |
| 5 | 13/32 | 1 | 139.12 |
| 5 | 13/32 | 1-1/4 | 139.12 |
| 5 | 7/16 | 1 | 142.73 |
| 5 | 7/16 | 1-1/4 | 142.73 |
| 5 | 1/2 | 1 | 142.73 |
| 5 | 1/2 | 1-1/4 | 142.73 |

| Cutter Dia. | Face Width | Hole Size | Price Each |
|-------------|------------|-----------|------------|
| 5 | 9/16 | 1 | 154.00 |
| 5 | 9/16 | 1-1/4 | 154.00 |
| 5 | 5/8 | 1 | 158.00 |
| 5 | 5/8 | 1-1/4 | 158.00 |
| 5 | 11/16 | 1 | 170.00 |
| 5 | 11/16 | 1-1/4 | 170.00 |
| 5 | 3/4 | 1 | 171.39 |
| 5 | 3/4 | 1-1/4 | 171.39 |
| 5 | 13/16 | 1 | 180.50 |
| 5 | 13/16 | 1-1/4 | 180.50 |
| 5 | 7/8 | 1 | 190.89 |
| 5 | 7/8 | 1-1/4 | 190.89 |
| 5 | 15/16 | 1 | 195.00 |
| 5 | 15/16 | 1-1/4 | 195.00 |
| 5 | 1 | 1 | 202.89 |
| 5 | 1 | 1-1/4 | 202.89 |
| 6 | 1/4 | 1 | 159.00 |
| 6 | 1/4 | 1-1/4 | 159.00 |
| 6 | 9/32 | 1-1/4 | 165.00 |
| 6 | 5/16 | 1 | 165.00 |
| 6 | 5/16 | 1-1/4 | 165.00 |
| 6 | 11/32 | 1-1/4 | 169.00 |
| 6 | 3/8 | 1 | 169.00 |
| 6 | 3/8 | 1-1/4 | 169.00 |
| 6 | 13/32 | 1-1/4 | 170.29 |
| 6 | 7/16 | 1 | 170.29 |
| 6 | 7/16 | 1-1/4 | 170.29 |
| 6 | 1/2 | 1 | 178.42 |
| 6 | 1/2 | 1-1/4 | 178.42 |
| 6 | 9/16 | 1 | 185.00 |
| 6 | 9/16 | 1-1/4 | 185.00 |
| 6 | 5/8 | 1 | 194.70 |
| 6 | 5/8 | 1-1/4 | 194.70 |
| 6 | 11/16 | 1 | 199.40 |
| 6 | 11/16 | 1-1/4 | 199.40 |
| 6 | 3/4 | 1 | 228.55 |
| 6 | 3/4 | 1-1/4 | 228.55 |
| 6 | 13/16 | 1 | 230.95 |
| 6 | 13/16 | 1-1/4 | 230.95 |
| 6 | 7/8 | 1 | 235.79 |
| 6 | 7/8 | 1-1/4 | 235.79 |
| 6 | 15/16 | 1 | 242.55 |
| 6 | 15/16 | 1-1/4 | 242.55 |
| 6 | 1 | 1 | 270.50 |
| 6 | 1 | 1-1/4 | 270.50 |
| 7 | 5/8 | 1-1/4 | 323.70 |
| 7 | 3/4 | 1-1/4 | 347.45 |
| 7 | 1 | 1-1/4 | 424.70 |
| 8 | 5/16 | 1-1/4 | 437.50 |
| 8 | 3/8 | 1-1/4 | 457.10 |
| 8 | 1/2 | 1-1/4 | 485.00 |
| 8 | 3/4 | 1-1/4 | 540.00 |
| 8 | 1 | 1-1/4 | 669.00 |
| 8 | 1 | 1-1/2 | 669.00 |



SIDE MILLING CUTTERS STAGGERED TEETH

For deep slotting and heavy duty side milling. The shear cutting action eliminates the side thrust.

● LIST NO. 744

| Cutter Dia. | Face Width | Hole Size | Price Each |
|-------------|------------|-----------|------------|
| 2-1/2 | 1/4 | 7/8 | 60.15 |
| 2-1/2 | 5/16 | 7/8 | 63.60 |
| 2-1/2 | 3/8 | 7/8 | 69.93 |
| 2-1/2 | 7/16 | 7/8 | 71.88 |
| 2-1/2 | 1/2 | 7/8 | 73.88 |
| 3 | 3/16 | 1 | 65.65 |
| 3 | 3/16 | 1-1/4 | 65.65 |
| 3 | 1/4 | 1 | 72.45 |
| 3 | 1/4 | 1-1/4 | 72.45 |
| 3 | 9/32 | 1 | 75.50 |
| 3 | 5/16 | 1 | 77.30 |
| 3 | 5/16 | 1-1/4 | 77.30 |
| 3 | 5/32 | 1 | 79.86 |
| 3 | 11/32 | 1 | 79.86 |
| 3 | 3/8 | 1 | 79.86 |
| 3 | 3/8 | 1-1/4 | 81.20 |
| 3 | 7/16 | 1 | 81.20 |
| 3 | 7/16 | 1-1/4 | 84.60 |
| 3 | 1/2 | 1 | 84.60 |
| 3 | 1/2 | 1-1/4 | 84.80 |
| 3 | 9/16 | 1 | 84.80 |
| 3 | 9/16 | 1-1/4 | 89.00 |
| 3 | 5/8 | 1 | 89.00 |
| 3 | 5/8 | 1-1/4 | 89.00 |
| 3 | 11/16 | 1 | 89.00 |
| 3 | 11/16 | 1-1/4 | 94.00 |
| 3 | 3/4 | 1 | 105.78 |
| 3 | 3/4 | 1-1/4 | 105.78 |
| 3 | 13/16 | 1 | 109.50 |
| 3 | 13/16 | 1-1/4 | 109.50 |
| 3 | 7/8 | 1 | 112.00 |
| 3 | 7/8 | 1-1/4 | 112.00 |
| 3 | 15/16 | 1 | 130.00 |
| 3 | 15/16 | 1-1/4 | 130.00 |
| 3 | 1 | 1 | 135.10 |
| 3 | 1 | 1-1/4 | 135.10 |
| 3-1/2 | 1/4 | 1 | 95.00 |
| 3-1/2 | 5/16 | 1 | 105.27 |
| 3-1/2 | 3/8 | 1 | 110.00 |
| 3-1/2 | 1/2 | 1 | 120.00 |
| 3-1/2 | 5/8 | 1 | 129.75 |
| 3-1/2 | 13/16 | 1 | 129.75 |
| 4 | 3/16 | 1 | 92.50 |
| 4 | 3/16 | 1-1/4 | 92.50 |
| 4 | 7/32 | 1 | 96.00 |
| 4 | 7/32 | 1-1/4 | 96.00 |
| 4 | 1/4 | 1 | 105.25 |
| 4 | 1/4 | 1-1/4 | 105.25 |
| 4 | 9/32 | 1 | 109.60 |
| 4 | 9/32 | 1-1/4 | 109.60 |
| 4 | 5/16 | 1 | 112.00 |
| 4 | 5/16 | 1-1/4 | 112.00 |
| 4 | 11/32 | 1 | 115.00 |
| 4 | 11/32 | 1-1/4 | 115.00 |
| 4 | 3/8 | 1 | 117.29 |
| 4 | 3/8 | 1-1/4 | 117.29 |
| 4 | 13/32 | 1-1/4 | 120.95 |
| 4 | 7/16 | 1 | 120.95 |
| 4 | 7/16 | 1-1/4 | 122.39 |
| 4 | 1/2 | 1 | 124.70 |
| 4 | 1/2 | 1-1/4 | 124.70 |
| 4 | 9/16 | 1 | 129.71 |
| 4 | 9/16 | 1-1/4 | 129.71 |
| 4 | 5/8 | 1 | 144.58 |

| Cutter Dia. | Face Width | Hole Size | Price Each |
|-------------|------------|-----------|------------|
| 4 | 5/8 | 1-1/4 | 144.58 |
| 4 | 11/16 | 1 | 149.00 |
| 4 | 11/16 | 1-1/4 | 149.00 |
| 4 | 3/4 | 1 | 151.55 |
| 4 | 3/4 | 1-1/4 | 151.55 |
| 4 | 13/16 | 1 | 160.85 |
| 4 | 13/16 | 1-1/4 | 160.85 |
| 4 | 7/8 | 1 | 160.85 |
| 4 | 7/8 | 1-1/4 | 160.85 |
| 4 | 15/16 | 1 | 178.49 |
| 4 | 15/16 | 1-1/4 | 178.49 |
| 4 | 1 | 1 | 185.72 |
| 4 | 1 | 1-1/4 | 182.72 |
| 4 | 1-1/8 | 1-1/4 | 202.00 |
| 4 | 1-3/16 | 1-1/4 | 219.39 |
| 4 | 1-1/4 | 1-1/4 | 219.39 |
| 4 | 1-1/2 | 1-1/4 | 295.00 |
| 4-1/2 | 1/2 | 1 | 165.60 |
| 4-1/2 | 1/2 | 1-1/4 | 165.60 |
| 5 | 1/4 | 1 | 149.50 |
| 5 | 1/4 | 1-1/4 | 149.50 |
| 5 | 5/16 | 1 | 153.75 |
| 5 | 5/16 | 1-1/4 | 153.75 |
| 5 | 3/8 | 1 | 159.70 |
| 5 | 3/8 | 1-1/4 | 159.70 |
| 5 | 7/16 | 1 | 165.09 |
| 5 | 7/16 | 1-1/4 | 165.09 |
| 5 | 1/2 | 1 | 168.80 |
| 5 | 1/2 | 1-1/4 | 168.80 |
| 5 | 9/16 | 1 | 176.00 |
| 5 | 9/16 | 1-1/4 | 176.00 |
| 5 | 5/8 | 1 | 188.83 |
| 5 | 5/8 | 1-1/4 | 188.83 |
| 5 | 11/16 | 1 | 206.35 |
| 5 | 11/16 | 1-1/4 | 206.35 |
| 5 | 3/4 | 1 | 206.35 |
| 5 | 3/4 | 1-1/4 | 206.35 |
| 5 | 13/16 | 1 | 225.15 |
| 5 | 13/16 | 1-1/4 | 225.15 |
| 5 | 7/8 | 1 | 225.15 |
| 5 | 7/8 | 1-1/4 | 225.15 |
| 5 | 15/16 | 1-1/4 | 250.09 |
| 5 | 1 | 1-1/4 | 255.00 |
| 6 | 1/4 | 1 | 194.99 |
| 6 | 1/4 | 1-1/4 | 194.99 |
| 6 | 9/32 | 1 | 194.99 |
| 6 | 9/32 | 1-1/4 | 194.99 |
| 6 | 5/16 | 1 | 194.99 |
| 6 | 5/16 | 1-1/4 | 194.99 |
| 6 | 3/8 | 1 | 194.99 |
| 6 | 3/8 | 1-1/4 | 194.99 |
| 6 | 7/16 | 1 | 209.95 |
| 6 | 7/16 | 1-1/4 | 209.95 |
| 6 | 1/2 | 1 | 222.98 |
| 6 | 1/2 | 1-1/4 | 222.98 |
| 6 | 9/16 | 1 | 237.97 |
| 6 | 9/16 | 1-1/4 | 237.97 |
| 6 | 5/8 | 1 | 252.98 |
| 6 | 5/8 | 1-1/4 | 252.98 |
| 6 | 11/16 | 1 | 270.00 |
| 6 | 11/16 | 1-1/4 | 270.00 |
| 6 | 3/4 | 1 | 270.00 |
| 6 | 3/4 | 1-1/4 | 270.00 |

| Cutter Dia. | Face Width | Hole Size | Price Each |
|-------------|------------|-----------|------------|
| 6 | 13/16 | 1 | 270.00 |
| 6 | 13/16 | 1-1/4 | 320.00 |
| 6 | 7/8 | 1 | 320.00 |
| 6 | 7/8 | 1-1/4 | 320.00 |
| 6 | 15/16 | 1 | 339.00 |
| 6 | 15/16 | 1-1/4 | 339.00 |
| 6 | 1 | 1-1/4 | 339.00 |
| 6 | 1-1/8 | 1-1/4 | 369.00 |
| 6 | 1-3/16 | 1-1/4 | 369.00 |
| 6 | 1-1/4 | 1-1/4 | 369.00 |
| 7 | 1/4 | 1-1/4 | 366.05 |
| 7 | 3/8 | 1-1/4 | 399.99 |
| 7 | 1/2 | 1-1/4 | 436.05 |
| 7 | 9/16 | 1-1/4 | 448.08 |
| 7 | 5/8 | 1-1/4 | 466.99 |
| 7 | 3/4 | 1-1/4 | 515.99 |
| 7 | 7/8 | 1-1/4 | 578.99 |
| 7 | 1 | 1-1/4 | 633.95 |
| 8 | 1/4 | 1-1/4 | 398.09 |
| 8 | 1/4 | 1-1/2 | 398.09 |
| 8 | 5/16 | 1-1/4 | 405.98 |
| 8 | 5/16 | 1-1/2 | 405.98 |
| 8 | 3/8 | 1-1/4 | 429.00 |
| 8 | 3/8 | 1-1/2 | 429.00 |
| 8 | 1/2 | 1-1/4 | 473.35 |
| 8 | 1/2 | 1-1/2 | 473.35 |
| 8 | 9/16 | 1-1/2 | 528.09 |
| 8 | 5/8 | 1-1/4 | 528.00 |
| 8 | 5/8 | 1-1/2 | 528.00 |
| 8 | 3/4 | 1-1/4 | 569.09 |
| 8 | 3/4 | 1-1/2 | 569.09 |
| 8 | 13/16 | 1-1/4 | 625.09 |
| 8 | 7/8 | 1-1/4 | 635.09 |
| 8 | 7/8 | 1-1/2 | 667.95 |
| 8 | 15/16 | 1-1/4 | 719.99 |
| 8 | 1 | 1-1/2 | 719.99 |
| 9 | 3/8 | 1-1/4 | 639.89 |
| 9 | 1/2 | 1-1/4 | 719.95 |
| 9 | 5/8 | 1-1/4 | 764.98 |
| 9 | 3/4 | 1-1/4 | 819.99 |
| 9 | 1 | 1-1/4 | 919.99 |
| 10 | 1/4 | 1-1/2 | 773.96 |
| 10 | 5/16 | 1-1/2 | 847.96 |
| 10 | 3/8 | 1-1/2 | 893.95 |
| 10 | 7/16 | 1-1/2 | 979.98 |
| 10 | 1/2 | 1-1/2 | 1016.99 |
| 10 | 9/16 | 1-1/2 | 1039.98 |
| 10 | 5/8 | 1-1/2 | 1074.95 |
| 10 | 11/16 | 1-1/2 | 1123.98 |
| 10 | 3/4 | 1-1/2 | 1135.98 |
| 10 | 13/16 | 1-1/2 | 1184.95 |
| 10 | 7/8 | 1-1/2 | 1233.98 |
| 10 | 15/16 | 1-1/2 | 1293.98 |
| 10 | 1 | 1-1/2 | 1353.95 |
| 12 | 1/4 | 1-1/2 | 1310.98 |
| 12 | 5/16 | 1-1/2 | 1385.99 |
| 12 | 3/8 | 1-1/2 | 1399.99 |
| 12 | 7/16 | 1-1/2 | 1479.94 |
| 12 | 1/2 | 1-1/2 | 1479.94 |
| 12 | 5/8 | 1-1/2 | 1559.99 |
| 12 | 3/4 | 1-1/2 | 1699.97 |
| 12 | 7/8 | 1-1/2 | 1809.98 |
| 12 | 1 | 1-1/2 | 1899.95 |

MILLING CUTTERS



CONCAVE

● LIST NO. 736



For milling male half circles.

| Cutter Dia. | Face Width | Hole Size | Price Each |
|-------------|------------|-----------|------------|
| 1/16 | 2-1/4 | 1 | 69.99 |
| 3/32 | 2-1/4 | 1 | 69.99 |
| 1/8 | 2-1/4 | 1 | 69.99 |
| 5/32 | 2-1/4 | 1 | 69.99 |
| 3/16 | 2-1/4 | 1 | 69.99 |
| 7/32 | 2-1/4 | 1 | 79.00 |
| 1/4 | 2-1/2 | 1 | 79.00 |
| 9/32 | 2-1/2 | 1 | 99.00 |
| 5/16 | 2-3/4 | 1 | 99.00 |
| 11/32 | 2-3/4 | 1 | 110.00 |
| 3/8 | 2-3/4 | 1 | 110.00 |
| 13/32 | 2-3/4 | 1 | 129.00 |
| 7/16 | 3 | 1 | 129.00 |
| 1/2 | 2-1/4 | 7/8 | 135.00 |
| 1/2 | 3 | 1 | 135.00 |
| 9/16 | 3 | 1 | 166.50 |
| 5/8 | 2-3/4 | 1 | 166.50 |
| 5/8 | 3 | 1 | 166.50 |
| 5/8 | 3-1/2 | 1-1/4 | 166.50 |
| 11/16 | 3 | 1 | 199.00 |
| 3/4 | 3 | 1 | 199.00 |
| 3/4 | 3-3/4 | 1-1/4 | 199.00 |
| 13/16 | 3-1/4 | 1 | 250.00 |
| 13/16 | 3-1/4 | 1-1/4 | 250.00 |
| 7/8 | 3-1/4 | 1 | 250.00 |
| 7/8 | 4 | 1-1/4 | 250.00 |
| 15/16 | 3-1/2 | 1 | 299.99 |
| 1 | 3-1/4 | 1 | 299.99 |
| 1 | 4-1/4 | 1-1/4 | 299.99 |
| 1-1/16 | 4 | 1-1/4 | 485.00 |
| 1-1/8 | 4 | 1-1/4 | 485.00 |
| 1-3/16 | 3-1/4 | 1 | 485.00 |
| 1-1/4 | 4 | 1-1/4 | 485.00 |
| 1-3/8 | 4-1/4 | 1-1/4 | 575.00 |
| 1-1/2 | 4-1/4 | 1-1/4 | 650.00 |
| 1-5/8 | 5-1/2 | 1-1/4 | 695.00 |
| 1-3/4 | 5-1/2 | 1-1/4 | 825.00 |
| 1-7/8 | 6 | 1-1/2 | 899.00 |
| 2 | 6 | 1-1/2 | 975.00 |

CONVEX

● LIST NO. 737



For milling female half circles.

| Cutter Dia. | Face Width | Hole Size | Price Each |
|-------------|------------|-----------|------------|
| 1/16 | 2-1/4 | 1 | 65.99 |
| 3/32 | 2-1/4 | 1 | 65.99 |
| 1/8 | 2 | 7/8 | 65.99 |
| 1/8 | 2-1/4 | 1 | 65.99 |
| 5/32 | 2-1/4 | 1 | 65.99 |
| 3/16 | 2 | 7/8 | 65.99 |
| 3/16 | 2-1/4 | 1 | 65.99 |
| 7/32 | 2-1/4 | 1 | 77.99 |
| 1/4 | 2 | 7/8 | 77.99 |
| 1/4 | 2-1/4 | 1 | 77.99 |
| 1/4 | 2-1/2 | 1 | 77.99 |
| 9/32 | 2-1/2 | 1 | 95.35 |
| 5/16 | 2-3/4 | 1 | 95.35 |
| 11/32 | 2-3/4 | 1 | 95.35 |
| 3/8 | 2-1/4 | 7/8 | 99.99 |
| 3/8 | 2-1/2 | 1 | 99.99 |
| 3/8 | 2-3/4 | 1 | 99.99 |
| 13/32 | 2-3/4 | 1 | 99.99 |
| 7/16 | 3 | 1 | 114.69 |
| 1/2 | 2-1/4 | 7/8 | 124.00 |
| 1/2 | 3 | 1 | 124.00 |
| 9/16 | 2-3/4 | 1 | 158.00 |
| 9/16 | 3 | 1 | 158.00 |
| 5/8 | 2-3/4 | 1 | 158.00 |
| 5/8 | 3 | 1 | 158.00 |
| 5/8 | 3-1/2 | 1 | 158.00 |
| 5/8 | 3-1/2 | 1-1/4 | 158.00 |
| 11/16 | 3 | 1 | 196.00 |
| 3/4 | 3 | 1 | 196.00 |
| 3/4 | 3-3/4 | 1-1/4 | 196.00 |
| 13/16 | 3-1/4 | 1 | 223.89 |
| 7/8 | 3-1/4 | 1 | 223.89 |
| 7/8 | 4 | 1-1/4 | 223.89 |
| 15/16 | 3-1/2 | 1 | 249.00 |
| 1 | 3-1/4 | 1 | 249.00 |
| 1 | 4-1/4 | 1-1/4 | 249.00 |
| 1-1/8 | 4 | 1-1/4 | 379.15 |
| 1-1/4 | 4 | 1-1/4 | 379.15 |
| 1-3/8 | 4-1/4 | 1-1/4 | 441.44 |
| 1-1/2 | 4-1/4 | 1-1/4 | 484.85 |
| 1-5/8 | 5-1/2 | 1-1/4 | 542.90 |
| 1-3/4 | 5-1/2 | 1-1/4 | 637.66 |
| 1-7/8 | 6 | 1-1/2 | 694.62 |
| 2 | 6 | 1-1/2 | 795.00 |

PLAIN - HEAVY DUTY

● LIST NO. 741HD

For heavy stock removal furnished with 45° left hand helix.

| Cutter Dia. | Face Width | Hole Size | Price Each |
|-------------|------------|-----------|------------|
| 2-1/2 | 2 | 1 | 112.65 |
| 2-1/2 | 4 | 1 | 190.05 |
| 3 | 2 | 1-1/4 | 146.90 |
| 3 | 2-1/2 | 1-1/4 | 178.45 |
| 3 | 3 | 1-1/4 | 198.20 |
| 3 | 4 | 1-1/4 | 256.50 |
| 3 | 6 | 1-1/4 | 425.15 |
| 4 | 2 | 1-1/2 | 221.55 |
| 4 | 3 | 1-1/2 | 327.65 |
| 4 | 4 | 1-1/2 | 462.95 |
| 4 | 6 | 1-1/2 | 668.10 |
| 4-1/2 | 6 | 2 | 945.21 |

HELICAL PLAIN MILLING CUTTER

45° LEFT HAND HELIX

● LIST NO. 742



For slab of face milling mild steels ideal for light or intermittent cut on thin parts. They can be run at high speeds and produce smooth finishes without leaving feed marks.

| Cutter Dia. | Face Width | Hole Size | Price Each |
|-------------|------------|-----------|------------|
| 3 | 4 | 1-1/4 | 350.99 |
| 3 | 6 | 1-1/4 | 625.99 |
| 4 | 4 | 1-1/2 | 795.00 |
| 4 | 6 | 1-1/2 | 925.00 |
| 4 | 8 | 1-1/2 | 1195.00 |
| 4-1/2 | 12 | 2 | 2350.00 |

PLAIN - LIGHT DUTY

● LIST NO. 741

For light milling or finishing cuts. Cutters less than 3/4" width have straight teeth. Cutters 3/4" and over are furnished with 20° left hand helix.

| Cutter Dia. | Face Width | Hole Size | Price Each |
|-------------|------------|-----------|------------|
| 2-1/2 | 3/16 | 1 | 29.63 |
| 2-1/2 | 1/4 | 1 | 35.59 |
| 2-1/2 | 5/16 | 1 | 37.45 |
| 2-1/2 | 3/8 | 7/8 | 40.69 |
| 2-1/2 | 3/8 | 1 | 40.69 |
| 2-1/2 | 7/16 | 1 | 46.29 |
| 2-1/2 | 1/2 | 1 | 46.29 |
| 2-1/2 | 5/8 | 1 | 50.94 |
| 2-1/2 | 3/4 | 1 | 55.85 |
| 2-1/2 | 1 | 1 | 67.59 |
| 2-1/2 | 1-1/2 | 1 | 87.20 |
| 2-1/2 | 2 | 1 | 104.85 |
| 2-1/2 | 2-1/2 | 1 | 126.54 |
| 2-1/2 | 3 | 1 | 138.75 |
| 3 | 3/16 | 1 | 36.05 |
| 3 | 1/4 | 1 | 45.49 |
| 3 | 1/4 | 1-1/4 | 45.49 |
| 3 | 5/16 | 1 | 50.49 |

| Cutter Dia. | Face Width | Hole Size | Price Each |
|-------------|------------|-----------|------------|
| 3 | 3/8 | 1 | 53.85 |
| 3 | 3/8 | 1-1/4 | 53.85 |
| 3 | 7/16 | 1 | 57.85 |
| 3 | 7/16 | 1-1/4 | 57.85 |
| 3 | 1/2 | 1 | 59.85 |
| 3 | 1/2 | 1-1/4 | 59.85 |
| 3 | 5/8 | 1 | 65.67 |
| 3 | 5/8 | 1-1/4 | 65.67 |
| 3 | 3/4 | 1 | 68.09 |
| 3 | 3/4 | 1-1/4 | 68.09 |
| 3 | 7/8 | 1 | 69.59 |
| 3 | 7/8 | 1-1/4 | 69.59 |
| 3 | 1 | 1-1/4 | 88.15 |
| 3 | 1-1/4 | 1-1/4 | 99.35 |
| 3 | 1-1/2 | 1-1/4 | 111.15 |
| 3 | 2 | 1-1/4 | 136.40 |
| 3 | 2-1/2 | 1-1/4 | 172.10 |
| 3 | 3 | 1-1/4 | 191.20 |

| Cutter Dia. | Face Width | Hole Size | Price Each |
|-------------|------------|-----------|------------|
| 4 | 3/16 | 1 | 65.00 |
| 4 | 1/4 | 1 | 68.11 |
| 4 | 1/4 | 1-1/4 | 68.11 |
| 4 | 5/16 | 1 | 73.45 |
| 4 | 5/16 | 1-1/4 | 73.45 |
| 4 | 3/8 | 1 | 77.40 |
| 4 | 3/8 | 1-1/4 | 77.40 |
| 4 | 7/16 | 1-1/4 | 94.00 |
| 4 | 1/2 | 1-1/4 | 94.59 |
| 4 | 9/16 | 1-1/4 | 100.00 |
| 4 | 5/8 | 1 | 100.39 |
| 4 | 5/8 | 1-1/4 | 100.39 |
| 4 | 3/4 | 1-1/4 | 110.65 |
| 4 | 1 | 1-1/4 | 132.90 |
| 4 | 1-1/2 | 1-1/4 | 171.39 |
| 4 | 2 | 1-1/4 | 211.05 |
| 4 | 3 | 1-1/4 | 311.35 |
| 4 | 4 | 1-1/4 | 411.59 |



MILLING CUTTERS



SINGLE ANGLE

- LIST NO. 720R — 45° RIGHT HAND
- LIST NO. 720L — 45° LEFT HAND
- LIST NO. 721R — 60° RIGHT HAND
- LIST NO. 721L — 60° LEFT HAND



DOUBLE ANGLE

- LIST NO. 722 — 45°
- LIST NO. 723 — 60°
- LIST NO. 724 — 90°

These cutters are utilized for milling ratchett teeth or dovetails.

| Cutter Dia. | Face Width | Hole Size | Price Each | | | |
|-------------|------------|-----------|---------------|---------------|---------------|---------------|
| | | | List No. 720R | List No. 720L | List No. 721R | List No. 721L |
| 2-1/2 | 1/2 | 7/8 | 75.65 | 75.65 | 75.65 | 75.65 |
| 2-3/4 | 1/2 | 1 | 84.75 | 84.75 | 84.75 | 84.75 |
| 3 | 1/2 | 1 | 102.75 | 102.75 | 102.75 | 102.75 |
| 3 | 1/2 | 1-1/4 | 102.75 | 102.75 | 102.75 | 102.75 |
| 3 | 5/8 | 1 | 149.00 | 149.00 | 149.00 | 149.00 |
| 3 | 5/8 | 1-1/4 | 149.00 | 149.00 | 149.00 | 149.00 |
| 3 | 3/4 | 1 | 165.49 | 165.49 | 165.49 | 165.49 |
| 3 | 3/4 | 1-1/4 | 165.49 | 165.49 | 165.49 | 165.49 |
| 4 | 1/2 | 1 | 184.95 | 184.95 | 184.95 | 184.95 |
| 4 | 1/2 | 1-1/4 | 216.50 | 216.50 | 216.50 | 216.50 |
| 4 | 3/4 | 1 | 238.25 | 238.25 | 238.25 | 238.25 |
| 4 | 3/4 | 1-1/4 | 238.25 | 238.25 | 238.25 | 238.25 |
| 4 | 1 | 1-1/4 | 238.25 | 238.25 | 238.25 | 238.25 |
| 5 | 3/4 | 1-1/4 | 275.25 | 275.25 | 275.25 | 275.25 |
| 5 | 1 | 1-1/4 | 324.40 | 324.40 | 324.40 | 324.40 |
| 6 | 3/4 | 1-1/4 | 368.30 | 368.30 | 368.30 | 368.30 |
| 6 | 1 | 1-1/4 | 438.80 | 438.80 | 438.80 | 438.80 |

Double angle cutters are used for milling notches, grooves, serrations, or threads.

| Cutter Dia. | Face Width | Hole Size | Price Each | | |
|-------------|------------|-----------|--------------|--------------|--------------|
| | | | List No. 722 | List No. 723 | List No. 724 |
| 2-3/4 | 1/2 | 1 | 78.50 | 78.50 | 78.50 |
| 3 | 5/8 | 1 | 155.09 | 155.09 | 155.09 |
| 3 | 3/4 | 1 | 169.09 | 169.09 | 169.09 |
| 4 | 1/2 | 1-1/4 | 178.40 | 178.40 | 178.40 |
| 4 | 3/4 | 1 | 221.25 | 221.25 | 221.25 |
| 4 | 3/4 | 1-1/4 | 244.00 | 244.00 | 244.00 |
| 4 | 1 | 1-1/4 | 244.00 | 244.00 | 244.00 |
| 5 | 3/4 | 1-1/4 | 264.00 | 264.00 | 264.00 |
| 5 | 1 | 1-1/4 | 264.00 | 264.00 | 264.00 |
| 6 | 3/4 | 1-1/4 | 409.50 | 409.50 | 409.50 |
| 6 | 1 | 1-1/4 | 419.00 | 419.00 | 419.00 |
| 6 | 1-1/2 | 1-1/4 | 593.75 | 593.75 | 593.75 |

SHANK TYPE MILLING CUTTERS

WELDON SHANK

To be used in Manual or NC Machining Centers. These cutters are preferred over form relief type cutters.



CONCAVE

For milling male half circles.

- LIST NO. 736S

| Radius | Cutter Diameter | Overall Length | Shank Diameter | No. of Flutes | Price Each |
|--------|-----------------|----------------|----------------|---------------|------------|
| 1/32 | 3/4 | 3 | 1/2 | 6 | 60.08 |
| 1/16 | 3/4 | 3 | 1/2 | 6 | 60.08 |
| 3/32 | 3/4 | 3 | 1/2 | 6 | 60.08 |
| 1/8 | 1 | 3-1/2 | 3/4 | 6 | 71.89 |
| 5/32 | 1 | 3-1/2 | 3/4 | 6 | 76.99 |
| 3/16 | 1 | 3-1/2 | 3/4 | 6 | 98.09 |
| 1/4 | 1-1/4 | 4 | 3/4 | 4 | 98.09 |
| 5/16 | 1-1/4 | 4 | 3/4 | 4 | 108.99 |
| 3/8 | 1-1/2 | 4-3/16 | 3/4 | 4 | 129.49 |

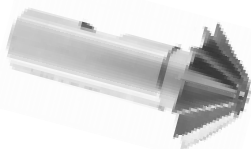


CONVEX

For milling female half circles.

- LIST NO. 737S

| Radius | Cutter Diameter | Overall Length | Shank Diameter | No. of Flutes | Price Each |
|--------|-----------------|----------------|----------------|---------------|------------|
| 1/32 | 3/4 | 3 | 1/2 | 6 | 68.09 |
| 1/16 | 3/4 | 3 | 1/2 | 6 | 65.09 |
| 3/32 | 7/8 | 3 | 1/2 | 6 | 68.08 |
| 1/8 | 1-1/4 | 3-1/2 | 3/4 | 6 | 72.39 |
| 5/32 | 1-5/16 | 3-1/2 | 3/4 | 6 | 79.29 |
| 3/16 | 1-3/8 | 3-1/2 | 3/4 | 6 | 82.99 |
| 1/4 | 1-1/2 | 4 | 3/4 | 6 | 92.39 |
| 5/16 | 1-5/8 | 4 | 3/4 | 6 | 124.08 |
| 3/8 | 1-3/4 | 4 | 3/4 | 6 | 129.79 |



SINGLE ANGLE

For chamfers and other angular milling operations.

- LIST NO. 745 — 45° INCLUDED ANGLE
- LIST NO. 746 — 60° INCLUDED ANGLE

| Cutter Dia. | Shank Dia. | Overall Length | Price Each | | | |
|-------------|------------|----------------|--------------|--------------|--------------|--------------|
| | | | 45° Angle | | 60° Angle | |
| | | | Cutter Width | List No. 745 | Cutter Width | List No. 746 |
| 1/2 | 3/8 | 2-1/8 | 1/8 | 51.50 | 7/32 | 51.50 |
| 3/4 | 3/8 | 2-1/8 | 3/16 | 60.41 | 5/16 | 60.41 |
| 1 | 1/2 | 2-1/2 | 5/16 | 75.08 | 7/16 | 75.08 |
| 1-1/2 | 3/4 | 2-3/4 | 1/2 | 96.90 | 5/8 | 96.90 |



DOUBLE ANGLE

For notches, V-Grooves and other angular milling operations.

- LIST NO. 747 — 60° INCLUDED ANGLE
- LIST NO. 748 — 90° INCLUDED ANGLE

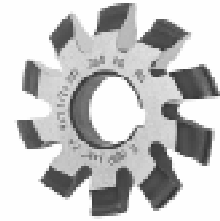
| Cutter Dia. | Shank Dia. | Overall Length | Price Each | | | | |
|-------------|------------|----------------|--------------|--------------|----------------|--------------|--------------|
| | | | 60° Angle | | 90° Angle | | |
| | | | Cutter Width | List No. 747 | Overall Length | Cutter Width | List No. 748 |
| 3/4 | 3/8 | 2-3/8 | 3/16 | 40.92 | 2-7/16 | 1/4 | 40.92 |
| 1 | 1/2 | 2-7/8 | 5/16 | 65.50 | 2-7/8 | 3/8 | 65.50 |
| 1-3/8 | 5/8 | 3-7/32 | 7/16 | 87.33 | 3-1/4 | 1/2 | 87.33 |
| 1-1/2 | 5/8 | 3-3/8 | 1/2 | 114.53 | 3-7/16 | 9/16 | 114.53 |
| 1-7/8 | 3/4 | 3-13/16 | 5/8 | 132.75 | 3-3/4 | 5/8 | 132.75 |
| 2-1/4 | 3/4 | 3-1/8 | 1/2 | 194.53 | 3-1/8 | 1/2 | 194.53 |
| 2-1/4 | 7/8 | 4-1/8 | 3/4 | 194.53 | 4-1/8 | 3/4 | 194.53 |

INVOLUTE GEAR CUTTERS

Involute Gear Cutters are used to mill gears with a 14-1/2° or 20° pressure angle. Eight (8) cutters are required to make a full set of gears from (12) teeth to a rack for each diametral pitch.

Eight cutters are made for each pitch diameter:

| | |
|--|-----------------------------------|
| No.1 will cut135 teeth to a rack | No.5 will cut 21 - 25 teeth |
| No.2 will cut 55 -134 teeth | No.6 will cut 17 - 20 teeth |
| No.3 will cut 35 - 54 teeth | No.7 will cut 14 - 16 teeth |
| No.4 will cut 26 - 34 teeth | No.8 will cut 12 - 13 teeth |



Please specify cutter number when ordering.

● LIST NO. 730 — 14-1/2° PRESSURE ANGLE

| Dia. Pitch | Cutter Dia. | Hole Size | Price Each |
|------------|-------------|-----------|------------|
| 1 | 8-1/2 | 2 | 1990.00 |
| 1-1/4 | 7-3/4 | 2 | 1400.00 |
| 1-1/2 | 7 | 1-3/4 | 995.00 |
| 1-3/4 | 6-1/2 | 1-3/4 | 850.00 |
| 2 | 5-3/4 | 1-1/2 | 544.70 |
| 2-1/2 | 5-3/4 | 1-1/2 | 424.58 |
| 3 | 4-3/4 | 1-1/4 | 298.97 |
| 4 | 3-5/8 | 1 | 185.57 |
| 4 | 4-1/4 | 1-1/4 | 210.40 |
| 4 | 4-1/2 | 1-1/2 | 225.46 |
| 5 | 3-3/8 | 1 | 160.96 |
| 5 | 3-3/4 | 1-1/4 | 165.96 |
| 6 | 3-1/8 | 1 | 130.44 |
| 6 | 3-1/2 | 1-1/4 | 148.72 |
| 7 | 2-7/8 | 1 | 130.83 |
| 7 | 3-3/8 | 1-1/4 | 148.72 |

| Dia. Pitch | Cutter Dia. | Hole Size | Price Each |
|------------|-------------|-----------|------------|
| 8 | 2-7/8 | 1 | 107.99 |
| 8 | 3-1/4 | 1-1/4 | 125.13 |
| 9 | 2-3/4 | 1 | 107.26 |
| 10 | 2-3/8 | 7/8 | 85.43 |
| 10 | 2-3/4 | 1 | 96.86 |
| 11 | 2-3/8 | 7/8 | 85.43 |
| 11 | 2-5/8 | 1 | 93.58 |
| 12 | 2-1/4 | 7/8 | 75.49 |
| 12 | 2-5/8 | 1 | 85.43 |
| 14 | 2-1/8 | 7/8 | 73.54 |
| 14 | 2-1/2 | 1 | 86.10 |
| 16 | 2-1/8 | 7/8 | 73.54 |
| 16 | 2-1/8 | 1 | 86.10 |
| 18 | 2 | 7/8 | 65.50 |
| 18 | 2-3/8 | 1 | 78.22 |
| 20 | 2 | 7/8 | 65.50 |
| 20 | 2-3/8 | 1 | 78.22 |

| Dia. Pitch | Cutter Dia. | Hole Size | Price Each |
|------------|-------------|-----------|------------|
| 22 | 2 | 7/8 | 65.50 |
| 24 | 1-3/4 | 7/8 | 65.50 |
| 24 | 2-1/4 | 1 | 78.22 |
| 26 | 1-3/4 | 7/8 | 65.50 |
| 26 | 2-1/4 | 1 | 78.22 |
| 28 | 1-3/4 | 7/8 | 65.50 |
| 28 | 2-1/4 | 1 | 78.22 |
| 30 | 1-3/4 | 7/8 | 65.50 |
| 30 | 2-1/4 | 1 | 78.22 |
| 32 | 1-3/4 | 7/8 | 61.05 |
| 32 | 2-1/4 | 1 | 69.81 |
| 36 | 1-3/4 | 7/8 | 61.05 |
| 36 | 2-1/4 | 1 | 69.81 |
| 40 | 1-3/4 | 7/8 | 61.05 |
| 48 | 1-3/4 | 7/8 | 61.05 |
| 48 | 2-1/4 | 1 | 69.81 |
| 60 | 1-3/4 | 7/8 | 61.05 |

● LIST NO. 731 — 20° PRESSURE ANGLE

| Dia. Pitch | Cutter Dia. | Hole Size | Price Each |
|------------|-------------|-----------|------------|
| 1 | 8-1/2 | 2 | 2100.00 |
| 1-1/4 | 7-3/4 | 2 | 1550.00 |
| 1-1/2 | 7 | 1-3/4 | 1075.00 |
| 1-3/4 | 6-1/2 | 1-3/4 | 920.00 |
| 2 | 5-3/4 | 1-1/2 | 544.70 |
| 2-1/2 | 5-3/4 | 1-1/2 | 424.58 |
| 3 | 4-3/4 | 1-1/4 | 298.97 |
| 4 | 3-5/8 | 1 | 185.57 |
| 4 | 4-1/4 | 1-1/4 | 210.40 |
| 5 | 3-3/8 | 1 | 160.96 |
| 5 | 3-3/4 | 1-1/4 | 165.96 |
| 6 | 3-1/8 | 1 | 130.44 |
| 6 | 3-1/2 | 1-1/4 | 148.72 |
| 7 | 2-7/8 | 1 | 130.83 |

| Dia. Pitch | Cutter Dia. | Hole Size | Price Each |
|------------|-------------|-----------|------------|
| 8 | 2-7/8 | 1 | 107.99 |
| 8 | 3-1/4 | 1-1/4 | 125.13 |
| 9 | 2-3/4 | 1 | 107.26 |
| 10 | 2-3/8 | 7/8 | 85.43 |
| 10 | 2-3/4 | 1 | 96.86 |
| 11 | 2-5/8 | 1 | 93.58 |
| 12 | 2-1/4 | 7/8 | 75.49 |
| 12 | 2-5/8 | 1 | 85.43 |
| 14 | 2-1/8 | 7/8 | 73.54 |
| 14 | 2-1/2 | 1 | 86.10 |
| 16 | 2-1/8 | 7/8 | 73.54 |
| 16 | 2-1/8 | 1 | 86.10 |
| 18 | 2 | 7/8 | 65.50 |
| 18 | 2-3/8 | 1 | 78.22 |
| 20 | 2 | 7/8 | 65.50 |
| 20 | 2-3/8 | 1 | 78.22 |

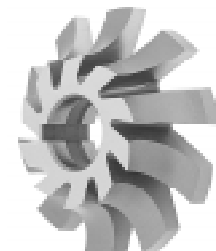
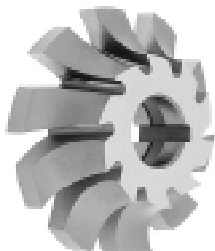
| Dia. Pitch | Cutter Dia. | Hole Size | Price Each |
|------------|-------------|-----------|------------|
| 22 | 2 | 7/8 | 65.50 |
| 24 | 1-3/4 | 7/8 | 65.50 |
| 24 | 2-1/4 | 1 | 78.22 |
| 26 | 1-3/4 | 7/8 | 65.50 |
| 26 | 2-1/4 | 1 | 78.22 |
| 28 | 1-3/4 | 7/8 | 65.50 |
| 28 | 2-1/4 | 1 | 78.22 |
| 30 | 1-3/4 | 7/8 | 65.50 |
| 30 | 2-1/4 | 1 | 78.22 |
| 32 | 1-3/4 | 7/8 | 61.05 |
| 32 | 2-1/4 | 1 | 69.81 |
| 36 | 1-3/4 | 7/8 | 61.05 |
| 36 | 2-1/4 | 1 | 69.81 |
| 40 | 1-3/4 | 7/8 | 61.05 |
| 48 | 1-3/4 | 7/8 | 61.05 |
| 48 | 2-1/4 | 1 | 69.81 |
| 60 | 1-3/4 | 7/8 | 61.05 |

CORNER ROUNDING MILLING CUTTERS

ARBOR TYPE

- LIST NO. 732R, RIGHT HAND CUTTER
- LIST NO. 732L, LEFT HAND CUTTER

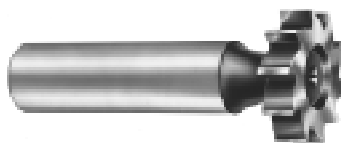
These cutters are designed to mill radii on various materials.



| Radius of Circle | Cutter Diameter | Face Width | Hole Size | Price Each | |
|------------------|-----------------|------------|-----------|---------------|---------------|
| | | | | List No. 732R | List No. 732L |
| 1/8 | 2 | 1/4 | 7/8 | 59.00 | 59.00 |
| 1/8 | 2-1/2 | 1/4 | 1 | 75.00 | 75.00 |
| 3/16 | 2-1/2 | 5/16 | 1 | 125.00 | 125.00 |
| 1/4 | 3 | 13/32 | 1 | 99.50 | 99.50 |
| 3/8 | 3 | 9/16 | 1 | 110.00 | 110.00 |
| 3/8 | 3-3/4 | 9/16 | 1-1/4 | 145.00 | 145.00 |
| 1/2 | 3-1/4 | 3/4 | 1 | 159.00 | 159.00 |
| 1/2 | 4-1/4 | 3/4 | 1-1/4 | 198.00 | 198.00 |
| 5/8 | 3-1/2 | 15/16 | 1 | 215.00 | 215.00 |
| 5/8 | 4-1/4 | 15/16 | 1-1/4 | 225.00 | 225.00 |

• WOODRUFF KEY SEAT CUTTERS

1/2 DIAMETER — STRAIGHT SHANK



For cutting standard and woodruff keyways in steel and other ferrous materials.

| Nominal Diameter | Face Width | Overall Length | American Standard # | Tool No. | Price Each |
|------------------|------------|----------------|---------------------|-----------|------------|
| 1/4 | 1/16 | 2-1/16 | 202 | KC202 | 19.15 |
| 5/16 | 1/16 | 2-1/16 | 202-1/2 | KC202-1/2 | 19.15 |
| 5/16 | 3/32 | 2-3/32 | 302-1/2 | KC302-1/2 | 19.15 |
| 3/8 | 1/16 | 2-1/16 | 203 | KC203 | 19.15 |
| 3/8 | 3/32 | 2-3/32 | 303 | KC303 | 19.15 |
| 3/8 | 1/8 | 2-1/8 | 403 | KC403 | 19.15 |
| 1/2 | 1/16 | 2-1/16 | 204 | KC204 | 19.15 |
| 1/2 | 3/32 | 2-3/32 | 304 | KC304 | 19.15 |
| 1/2 | 1/8 | 2-1/8 | 404 | KC404 | 19.15 |
| 5/8 | 3/32 | 2-3/32 | 305 | KC305 | 19.15 |
| 5/8 | 1/8 | 2-1/8 | 405 | KC405 | 19.15 |
| 5/8 | 5/32 | 2-5/32 | 505 | KC505 | 19.15 |
| 5/8 | 3/16 | 2-3/16 | 605 | KC605 | 19.15 |
| 3/4 | 1/8 | 2-1/8 | 406 | KC406 | 19.15 |
| 3/4 | 5/32 | 2-5/32 | 506 | KC506 | 20.33 |
| 3/4 | 3/16 | 2-3/16 | 606 | KC606 | 20.33 |
| 3/4 | 1/4 | 2-1/4 | 806 | KC806 | 20.33 |
| 7/8 | 5/32 | 2-5/32 | 507 | KC507 | 22.63 |
| 7/8 | 3/16 | 2-3/16 | 607 | KC607 | 22.63 |
| 7/8 | 7/32 | 2-7/32 | 707 | KC707 | 22.63 |
| 7/8 | 1/4 | 2-1/4 | 807 | KC807 | 22.63 |

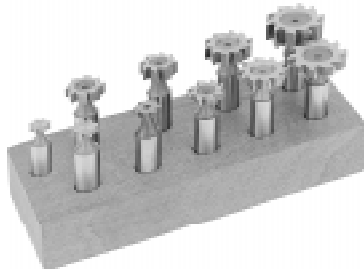
| Nominal Diameter | Face Width | Overall Length | American Standard # | Tool No. | Price Each |
|------------------|------------|----------------|---------------------|----------|------------|
| 1 | 3/16 | 2-3/16 | 608 | KC608 | 24.40 |
| 1 | 7/32 | 2-7/32 | 708 | KC708 | 24.40 |
| 1 | 1/4 | 2-1/4 | 808 | KC808 | 24.40 |
| 1 | 5/16 | 2-5/16 | 1008 | KC1008 | 24.97 |
| 1 | 3/8 | 2-3/8 | 1208 | KC1208 | 24.97 |
| 1-1/8 | 3/16 | 2-3/16 | 609 | KC609 | 27.30 |
| 1-1/8 | 7/32 | 2-7/32 | 709 | KC709 | 27.30 |
| 1-1/8 | 1/4 | 2-1/4 | 809 | KC809 | 27.30 |
| 1-1/8 | 5/16 | 2-5/16 | 1009 | KC1009 | 29.05 |
| 1-1/4 | 3/16 | 2-3/16 | 610 | KC610 | 30.20 |
| 1-1/4 | 7/32 | 2-7/32 | 710 | KC710 | 30.20 |
| 1-1/4 | 1/4 | 2-1/4 | 810 | KC810 | 31.36 |
| 1-1/4 | 5/16 | 2-5/16 | 1010 | KC1010 | 32.53 |
| 1-1/4 | 3/8 | 2-3/8 | 1210 | KC1210 | 32.53 |
| 1-3/8 | 1/4 | 2-1/4 | 811 | KC811 | 34.85 |
| 1-3/8 | 5/16 | 2-5/16 | 1011 | KC1011 | 34.85 |
| 1-3/8 | 3/8 | 2-3/8 | 1211 | KC1211 | 36.03 |
| 1-1/2 | 1/4 | 2-1/4 | 812 | KC812 | 36.03 |
| 1-1/2 | 5/16 | 2-5/16 | 1012 | KC1012 | 36.03 |
| 1-1/2 | 3/8 | 2-3/8 | 1212 | KC1212 | 38.35 |

SETS

SET NO. KCS1

10 Piece Set
Contains 1 piece of each:
KC204, KC305, KC403,
KC404, KC406, KC505,
KC606, KC608, KC806, KC808
Supplied in wood block.

SET PRICE — \$204.00



SET NO. KCS2

41 Piece Set
Contains 1 piece of each:
KC202 thru KC1212
Supplied in a wood case.

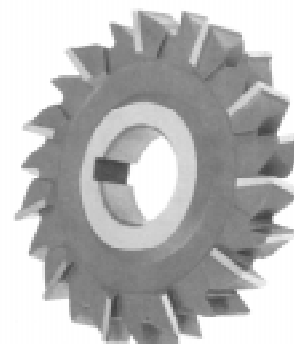
SET PRICE — \$1025.00



• STAGGERED TOOTH WOODRUFF KEY SEAT CUTTERS

| Nominal Diameter | Face Width | Hole Size | American Standard # | Tool No. | Price Each |
|------------------|------------|-----------|---------------------|----------|------------|
| 2-1/8 | 3/16 | 3/4 | 617 | KCA617 | 49.50 |
| 2-1/8 | 1/4 | 3/4 | 817 | KCA817 | 51.75 |
| 2-1/8 | 5/16 | 3/4 | 1017 | KCA1017 | 57.75 |
| 2-1/8 | 3/8 | 3/4 | 1217 | KCA1217 | 65.00 |
| 2-3/4 | 1/4 | 1 | 822 | KCA822 | 71.40 |
| 2-3/4 | 5/16 | 1 | 1022 | KCA1022 | 75.60 |
| 2-3/4 | 3/8 | 1 | 1222 | KCA1222 | 79.90 |
| 2-3/4 | 7/16 | 1 | 1422 | KCA1422 | 84.00 |
| 2-3/4 | 1/2 | 1 | 1622 | KCA1622 | 89.90 |
| 3-1/2 | 3/8 | 1 | 1228 | KCA1228 | 108.75 |
| 3-1/2 | 7/16 | 1 | 1428 | KCA1428 | 116.75 |
| 3-1/2 | 1/2 | 1 | 1628 | KCA1628 | 120.00 |
| 3-1/2 | 9/16 | 1 | 1828 | KCA1828 | 135.00 |
| 3-1/2 | 5/8 | 1 | 2028 | KCA2028 | 135.00 |
| 3-1/2 | 11/16 | 1 | 2228 | KCA2228 | 139.50 |
| 3-1/2 | 3/4 | 1 | 2428 | KCA2428 | 139.50 |

ARBOR TYPE





MADE IN U.S.A.

◆ NMTB QUICK CHANGE TOOLING

Hardened and Ground Throughout

These Quick Change Adapters are designed to interchange with Erickson Style Holders and all No. 30 and No. 40 standard milling machine tapers. This tooling will also fit holders and spindles commonly used on the Bridgeport® Series I and Series II CNC Milling Machines and other similar milling machines.

FITS ERICKSON STYLE HOLDERS!



MORSE TAPER ADAPTERS

| Morse Taper I.D. | Quick Change Taper | No. 30 Taper | | No. 40 Taper | |
|------------------|--------------------|--------------|------------|--------------|------------|
| | | Tool No. | Price Each | Tool No. | Price Each |
| 1 | 30, - | QCM3-1 | 66.00 | - | - |
| 2 | 30, 40 | QCM3-2 | 86.00 | QCM4-2 | 88.00 |
| 3 | 30, 40 | QCM3-3 | 86.00 | QCM4-3 | 88.00 |
| 4 | 30, 40 | QCM3-4 | 94.00 | QCM4-4 | 97.00 |
| 5 | - , 40 | - | - | QCM4-5 | 124.00 |

END MILL ADAPTERS

| Diameter of Hole | Quick Change Taper | No. 30 Taper | | No. 40 Taper | |
|------------------|--------------------|--------------|------------|--------------|------------|
| | | Tool No. | Price Each | Tool No. | Price Each |
| 3/16 | 30, 40 | QCE3-187 | 83.00 | QCE4-187 | 99.00 |
| 3/8 | 30, 40 | QCE3-375 | 83.00 | QCE4-375 | 93.50 |
| 1/2 | 30, 40 | QCE3-500 | 83.00 | QCE4-500 | 93.50 |
| 5/8 | 30, 40 | QCE3-625 | 90.00 | QCE4-625 | 97.00 |
| 3/4 | 30, 40 | QCE3-750 | 90.00 | QCE4-750 | 97.00 |
| 7/8 | 30, 40 | QCE3-875 | 94.00 | QCE4-875 | 105.00 |
| 1 | 30, 40 | QCE3-1000 | 98.00 | QCE4-1000 | 118.00 |
| 1-1/4 | 30, 40 | QCE3-1250 | 108.00 | QCE4-1250 | 128.00 |

Replacement screws are available. Please Inquire.

SHELL AND FACEMILL ADAPTERS

| Pilot Diameter | Quick Change Taper | No. 30 Taper | | No. 40 Taper | |
|----------------|--------------------|--------------|------------|--------------|------------|
| | | Tool No. | Price Each | Tool No. | Price Each |
| 1/2 | 30, 40 | QCS3-500 | 102.00 | QCS4-500 | 109.00 |
| 3/4 | 30, 40 | QCS3-750 | 106.00 | QCS4-750 | 109.00 |
| 1 | 30, 40 | QCS3-1000 | 107.00 | QCS4-1000 | 133.00 |
| 1-1/4 | 30, 40 | QCS3-1250 | 133.00 | QCS4-1250 | 133.00 |
| 1-1/2 | 30, 40 | QCS3-1500 | 140.00 | QCS4-1500 | 148.00 |

Replacement Screws and Arbor Keys are Available. Please Inquire.

JACOBS TAPER ADAPTERS

| Jacobs Taper | Quick Change Taper | No. 30 Taper | | No. 40 Taper | |
|--------------|--------------------|--------------|------------|--------------|------------|
| | | Tool No. | Price Each | Tool No. | Price Each |
| 1 | 30, - | QCJ3-1 | 94.00 | - | - |
| 2 | 30, 40 | QCJ3-2 | 86.00 | QCJ4-2 | 88.00 |
| 3 | 30, 40 | QCJ3-3 | 86.00 | QCJ4-3 | 88.00 |
| 33 | 30, 40 | QCJ3-33 | 86.00 | QCJ4-33 | 88.00 |
| 4 | 30, 40 | QCJ3-4 | 89.00 | QCJ4-4 | 97.00 |
| 6 | 30, 40 | QCJ3-6 | 89.00 | QCJ4-6 | 104.00 |

ARBORS, ADAPTERS AND CLAMP SETS

◆ SHELL END MILL ARBORS WITH NST SHANK

These arbors are made of alloy forged steel for a more durable service life.



| NST Shank | Diameter of Bore | Diameter Range of Shell End Mill | Tool No. | Price Each |
|-----------|------------------|----------------------------------|----------|------------|
| 30 | 1/2 | 1-1/4 to 1-1/2 | HS3012 | 72.80 |
| 30 | 3/4 | 1-3/4 to 2 | HS3034 | 72.80 |
| 30 | 1 | 2-1/4 to 2-3/4 | HS301 | 72.80 |
| 30 | 1-1/4 | 3 to 3-1/2 | HS30114 | 72.80 |
| 40 | 1/2 | 1-1/4 to 1-1/2 | HS4012 | 99.00 |
| 40 | 3/4 | 1-3/4 to 2 | HS4034 | 99.00 |
| 40 | 1 | 2-1/4 to 2-3/4 | HS401 | 99.00 |
| 40 | 1-1/4 | 3 to 3-1/2 | HS40114 | 99.00 |
| 40 | 1-1/2 | 4 to 5 | HS40112 | 99.00 |
| 40 | 2 | 5-1/2 to 6 | HS402 | 99.00 |
| 50 | 1/2 | 1-1/4 to 1-1/2 | HS5012 | 149.00 |
| 50 | 3/4 | 1-3/4 to 2 | HS5034 | 149.00 |
| 50 | 1 | 2-1/4 to 2-3/4 | HS501 | 149.00 |
| 50 | 1-1/4 | 3 to 3-1/2 | HS50114 | 149.00 |
| 50 | 1-1/2 | 4 to 5 | HS50112 | 149.00 |
| 50 | 2 | 5-1/2 to 6 | HS502 | 149.00 |

◆ SHELL END MILL ARBORS WITH R8 SHANK

| Bore Dia. for Standard Shell | Dia. Range of Standard Shell | Tool No. | Price Each |
|------------------------------|------------------------------|----------|------------|
| 1/2 | 1-1/4 to 1-1/2 | R8S12 | 54.75 |
| 3/4 | 1-3/4 to 2 | R8S34 | 54.75 |
| 1 | 2-1/4 to 2-3/4 | R8S1 | 58.75 |
| 1-1/4 | 3 to 3-1/2 | R8S114 | 58.75 |
| 1-1/2 | 4 to 5 | R8S112 | 78.75 |

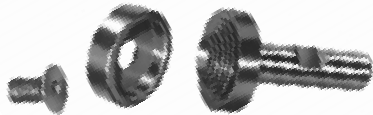


SET NO. R8 SHELL

5 Piece Set
Contains 1 piece of each:
1/2, 3/4, 1", 1-1/4, 1-1/2
Supplied in wood block.

SET PRICE - \$299.00

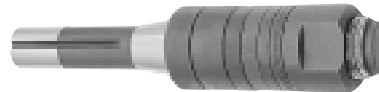
◆ SLITTING AND SLOTTING SAW ARBOR



This arbor offers flexibility in sawing operations. The spring-loaded mechanism accepts saw-blades with hole diameters from 1/2" to 1". Blades are firmly held in position with a flat head socket cap screw.

| Shank Diameter | Overall Length | Tool No. | Price Each |
|-----------------|----------------|----------|------------|
| 1/2" Weldon R-8 | 2-9/16 | HSA12 | 19.50 |
| | 5-3/32 | HSAR8 | 21.75 |

◆ SLITTING SAW AND STUB MILLING MACHINE ARBORS WITH R8 SHANK



These arbors are made of alloy forged steel for a more durable service life.

| Dia. of Arbor | Shoulder to Nut | Tool No. | Price Each |
|---------------|-----------------|----------|------------|
| 1 | 2" | R8SM1 | 85.00 |
| 1-1/4 | 2" | R8SM114 | 92.50 |

Supplied with spacers. Replacement spacers, nuts, and arbor keys available. Please inquire.

◆ MILLING MACHINE ADAPTERS

Hardened and Ground

For changing from National Standard Taper to Morse Taper



Open End Type and Drawbar End Type

| Outside Taper | Inside Taper | Open End Tool No. | Draw Bar End Type Tool No. | Price Each |
|---------------|--------------|-------------------|----------------------------|------------|
| 40 | 2 | HP40-2 | HPD40-2 | 79.00 |
| 40 | 3 | HP40-3 | HPD40-3 | 79.00 |
| 40 | 4 | HP40-4 | HPD40-4 | 79.00 |
| 40 | 5 | HP40-5 | HPD40-5 | 98.50 |
| 50 | 2 | HP50-2 | HPD50-2 | 110.00 |
| 50 | 3 | HP50-3 | HPD50-3 | 110.00 |
| 50 | 4 | HP50-4 | HPD50-4 | 110.00 |
| 50 | 5 | HP50-5 | HPD50-5 | 144.00 |



Reducing Type

| Outside Taper | Inside Taper | Tool No. | Price Each |
|---------------|--------------|----------|------------|
| 40 | 30 | HR40-30 | 120.00 |
| 50 | 30 | HR50-30 | 129.75 |
| 50 | 40 | HR50-40 | 129.75 |

For changing a larger National Standard Taper to a smaller one.

Federal Tool Premium Import

◆ 52-PC CLAMPING SET

For Bridgeport Type Machines

• Table T-Slot Size 5/8" • Stud Size 1/2"-13



SET NO. CPK52

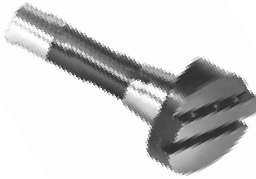
52 Piece Set
Each Set Contains:
- 24 Studs - 4 Pcs EA:
3, 4, 5, 6, 7 & 8 long
- 4 Coupling nuts
- 6 Forged steel step clamps
- 6 T - slot nuts
- 6 Flange nuts
- 6 Steel step blocks

Supplied in fitted rack for mounting on wall or machine

SET PRICE - \$69.95



UNI-KUT FLY TOOL CUTTERS



- Uses inexpensive standard tool bits
- Makes wider cuts than end mills
- Saves purchase and re-grind costs of end mills
- Faster speeds and better finishes
- Less chatter and free cutting on thin material or non-rigid set ups

| Head Diameter | Shank Size | Tool Bit Size | Tool No. | Price Each |
|-----------------------|------------|---------------|----------|------------|
| STRAIGHT SHANK | | | | |
| 3/4 | 1/2 | 3/16 | K121 | 10.95 |
| 1-1/8 | 1/2 | 1/4 | K122 | 12.50 |
| 1-3/8 | 1/2 | 5/16 | K123 | 13.95 |
| 1-3/8 | 3/4 | 5/16 | K341 | 22.50 |
| 1-1/2 | 3/4 | 3/8 | K341A | 23.25 |
| 2 | 3/4 | 5/16 | K342 | 23.75 |
| 2 | 3/4 | 3/8 | K342A | 24.50 |
| 2-1/2 | 3/4 | 5/16 | K343 | 27.50 |
| 2-1/2 | 3/4 | 1/2 | K343A | 28.50 |
| R-8 SHANK | | | | |
| 2-1/2 | R-8 | 5/16 | K348 | 44.50 |

Tool Bits are featured on pages 122 and 123.

Federal Tool Premium Import

HIGH SPEED STEEL AND COBALT

"T" SLOT CUTTERS

- LIST NO. 749 — HIGH SPEED STEEL
- LIST NO. 749CR — COBALT ROUGHING



For milling T-Slots in tables and beds of machine tools

| Bolt Size | Dia. of Cutter | Cutter Width | Dia. of Neck | Dia. of Shank | Overall Length | Price Each | |
|-----------|----------------|--------------|--------------|---------------|----------------|--------------|----------------|
| | | | | | | List No. 749 | List No. 749CR |
| 1/4 | 9/16 | 15/64 | 17/64 | 1/2 | 2-19/32 | 48.00 | — |
| 5/16 | 21/32 | 17/64 | 21/64 | 1/2 | 2-11/16 | 52.80 | — |
| 3/8 | 25/32 | 21/64 | 13/32 | 3/4 | 3-1/4 | 66.00 | — |
| 1/2 | 31/32 | 25/64 | 17/32 | 3/4 | 3-7/16 | 75.60 | 115.00 |
| 5/8 | 1-1/4 | 31/64 | 21/32 | 1 | 3-15/16 | 102.60 | 148.00 |
| 3/4 | 1-15/32 | 5/8 | 25/32 | 1 | 4-7/16 | 110.00 | 163.00 |
| 1 | 1-27/32 | 53/64 | 1-1/32 | 1-1/4 | 4-13/16 | 191.00 | 285.00 |
| 1-1/4 | 2-7/32 | 1-3/32 | 1-9/32 | 1-1/4 | 5-3/8 | 239.50 | 345.00 |
| 1-1/2 | 2-21/32 | 1-11/32 | 1-17/32 | 1-1/4 | 5-29/32 | 306.00 | 440.00 |

SET NO. 749S

7 Piece Set - High Speed Steel
Contains 1 piece of each:
1/4 thru 1"
Supplied in wood block.

SET PRICE — \$645.00

SET NO. 749CRS

4 Piece Set - Cobalt Roughing
Contains 1 piece of each:
1/2 thru 1"
Supplied in wood block.

SET PRICE — \$710.00

45° H.S. SET NO. 275S

60° H.S. SET NO. 276S
4 Piece Set
Contains 1 piece of each:
3/8 thru 1-3/8
Supplied in wood block

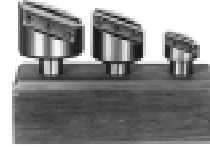
SET PRICE — \$219.00

45° COBALT SET NO. 275CS

60° COBALT SET NO. 276CS
4 Piece Set
Contains 1 piece of each:
3/8 thru 1-3/8
Supplied in wood block

SET PRICE — \$359.00

SETS



SET NO. K120

1/2" STRAIGHT SHANKS

3 Piece Set
Contains 1 piece of each:
K121, K122, K123
Supplied in wood block.

SET PRICE — \$36.95

SET NO. K340

3/4" STRAIGHT SHANKS

3 Piece Set with 5/16" Tool Bits
Contains 1 piece of each:
K341, K342, K343
Supplied in wood block.

SET PRICE — \$73.75

SET NO. K340A

3/4" STRAIGHT SHANKS

3 Piece Set with 3/8" Tool Bits
Contains 1 piece of each:
K141A, K342A, K343A
Supplied in wood block.

SET PRICE — \$76.50

SET NO. K340B

1/2" AND 3/4" SHANKS

6 Piece Set with 3/16,
1/4 and 5/16 Tool Bits
Contains 1 piece of each:
K121, K122, K123
K341, K342, K343
Supplied in wood block.

SET PRICE — \$109.00

Federal Tool Premium Import

HIGH SPEED STEEL AND COBALT

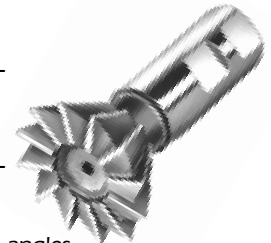
DOVETAIL CUTTERS

45° LEAD ANGLE

- LIST NO. 275 — HIGH SPEED STEEL
- LIST NO. 275C — COBALT

60° LEAD ANGLE

- LIST NO. 276 — HIGH SPEED STEEL
- LIST NO. 276C — COBALT



For cutting dovetails and angles.

| Diameter of Cut | Width of Cut | Shank Diameter | Overall Length | Price Each | |
|-----------------------|--------------|----------------|----------------|--------------|---------------|
| | | | | H. S. | Cobalt |
| 45° LEAD ANGLE | | | | List No. 275 | List No. 275C |
| 3/8 | 1/8 | 3/8 | 2-1/8 | 42.50 | 70.12 |
| 1/2 | 1/8 | 3/8 | 2-1/8 | 44.89 | 74.07 |
| 3/4 | 3/16 | 3/8 | 2-1/8 | 54.35 | 89.67 |
| 1- 3/8 | 3/8 | 5/8 | 2-7/8 | 89.50 | 147.68 |
| 1- 7/8 | 1/2 | 7/8 | 3-1/4 | 174.00 | 287.00 |
| 2- 1/4 | 11/16 | 1 | 3-3/4 | 207.40 | 342.00 |
| 60° LEAD ANGLE | | | | List No. 276 | List No. 276C |
| 3/8 | 1/8 | 3/8 | 2-1/8 | 42.50 | 70.12 |
| 1/2 | 7/32 | 3/8 | 2-1/8 | 44.89 | 74.07 |
| 3/4 | 5/16 | 3/8 | 2-1/8 | 54.35 | 89.67 |
| 1- 3/8 | 9/16 | 5/8 | 2-7/8 | 89.50 | 147.68 |
| 1- 7/8 | 13/16 | 7/8 | 3-1/4 | 174.00 | 287.00 |
| 2- 1/4 | 1-1/16 | 1 | 3-3/4 | 207.40 | 342.00 |



◆ UNO-DEX® INDEXABLE FLY CUTTER

- LOW COST • RUGGED CONSTRUCTION FOR LONG TOOL LIFE • ONE CLAMP FITS ALL TOOL SIZES
- USES STANDARD INEXPENSIVE INSERTS • PRODUCES WIDER CUTS THAN END MILLS

SINGLE FLUTE — TRIANGLE INSERTED — POSITIVE RAKE — 90° CUT

| TRIANGLE INSERTED | | | |
|-----------------------|---------------------|-------------|------------|
| Cutting and Head Dia. | Shank Dia. or Style | Tool Number | Price Each |
| 1-1/2 | 3/4 | KT150-34 | 64.00 |
| 1-1/2 | R-8 | KT150-R8 | 75.00 |
| 2 | 3/4 | KT200-34 | 73.00 |
| 2 | R-8 | KT200-R8 | 85.00 |
| 2-1/2 | 3/4 | KT250-34 | 86.00 |
| 2-1/2 | R-8 | KT250-R8 | 102.00 |
| 3 | 3/4 | KT300-34 | 101.00 |
| 3 | R-8 | KT300-R8 | 114.00 |

Inserts sold separately.



| SETS | |
|--|--|
| 3/4" SHANK | |
| SET NO. KT750 | |
| Contains 1 Piece Each 1-1/2, 2, 2-1/2, 3 Supplied in wood block SET PRICE — \$324.00 | |
| R-8 SHANK | |
| SET NO. KTR8 | |
| Contains 1 Piece Each 1-1/2, 2, 2-1/2, 3 Supplied in wood block SET PRICE — \$376.00 | |

| TPG TRIANGLE — Positive rake ground all over | | | | | | |
|--|--------|------|-----------|------------|-----------|-------------|
| CARBIDE INSERTS | | | | | | |
| Insert Number | Radius | I.C. | Thickness | Price Each | | |
| | | | | C-2 | C-5 & C-6 | TiN Coated* |
| TPG-321 | 1/64 | 3/8 | 1/8 | 4.89 | 5.18 | 6.21 |
| TPG-322 | 1/32 | 3/8 | 1/8 | 4.89 | 5.18 | 6.21 |
| TPG-323 | 3/64 | 3/8 | 1/8 | 4.89 | 5.18 | 6.21 |
| TPG-324 | 1/16 | 3/8 | 1/8 | 4.89 | 5.18 | 6.21 |

*C-5 & C-6 Grade TiN Coated

| TPC TRIANGLE — Positive rake ground all over with wiping flats on three corners | | | | | | |
|---|--------|------|-----------|------------|-----------|-------------|
| CARBIDE INSERTS WITH WIPING FLATS | | | | | | |
| Insert Number | Radius | I.C. | Thickness | Price Each | | |
| | | | | C-2 | C-5 & C-6 | TiN Coated* |
| TPC-32ZR | — | 3/8 | 1/8 | 4.80 | 4.98 | 5.85 |

*C-5 & C-6 Grade TiN Coated

| REPLACEMENT PARTS LIST | | |
|------------------------|----------------------------------|------------|
| Part No. | Description | Price Each |
| CTD-2 | Hold Down Clamp | 5.55 |
| CS832-12 | Clamp Screw | .50 |
| CSW | 9/64 Allen Wrench for 8-32 Screw | .50 |

SINGLE FLUTE — SQUARE INSERTED — POSITIVE RAKE — 45° CUT

| SQUARE INSERTED | | | |
|-----------------------|---------------------|-------------|------------|
| Cutting and Head Dia. | Shank Dia. or Style | Tool Number | Price Each |
| 1-1/2 | 3/4 | KX150-34 | 64.00 |
| 1-1/2 | R-8 | KX150-R8 | 75.00 |
| 2 | 3/4 | KX200-34 | 73.00 |
| 2 | R-8 | KX200-R8 | 85.00 |
| 2-1/2 | 3/4 | KX250-34 | 86.00 |
| 2-1/2 | R-8 | KX250-R8 | 102.00 |
| 3 | 3/4 | KX300-34 | 101.00 |
| 3 | R-8 | KX300-R8 | 114.00 |

Inserts sold separately.



| SETS | |
|--|--|
| 3/4" SHANK | |
| SET NO. KX750 | |
| Contains 1 Piece Each 1-1/2, 2, 2-1/2, 3 Supplied in wood block SET PRICE — \$324.00 | |
| R-8 SHANK | |
| SET NO. KXR8 | |
| Contains 1 Piece Each 1-1/2, 2, 2-1/2, 3 Supplied in wood block SET PRICE — \$376.00 | |

| SPG SPU | | | | | | |
|-----------------|--------|------|-----------|------------|-----------|-------------|
| CARBIDE INSERTS | | | | | | |
| Insert Number | Radius | I.C. | Thickness | Price Each | | |
| | | | | C-2 | C-5 & C-6 | TiN Coated* |
| SPG-422 | 1/32 | 1/2 | 1/8 | 4.75 | 5.12 | 5.80 |
| SPG-423 | 3/64 | 1/2 | 1/8 | 4.75 | 5.12 | 5.80 |
| SPG-424 | 1/16 | 1/2 | 1/8 | 4.75 | 5.12 | 5.80 |
| SPU-422 | 1/32 | 1/2 | 1/8 | 4.10 | 4.46 | 5.13 |
| SPU-423 | 3/64 | 1/2 | 1/8 | 4.10 | 4.46 | 5.13 |

*C-5 & C-6 Grade TiN Coated

| SPC SQUARE — Positive rake ground all over with wiping flats on four corners. | | | | | | |
|---|--------|------|-----------|------------|-----------|-------------|
| CARBIDE INSERTS WITH WIPING FLATS | | | | | | |
| Insert Number | Radius | I.C. | Thickness | Price Each | | |
| | | | | C-2 | C-5 & C-6 | TiN Coated* |
| SPC-42ZR | — | 1/2 | 1/8 | 4.95 | 5.30 | 6.35 |

*C-5 & C-6 Grade TiN Coated

| REPLACEMENT PARTS LIST | | |
|------------------------|----------------------------------|------------|
| Part No. | Description | Price Each |
| CTD-2 | Hold Down Clamp | 5.55 |
| CS832-12 | Clamp Screw | .50 |
| CSW | 9/64 Allen Wrench for 8-32 Screw | .50 |

THE

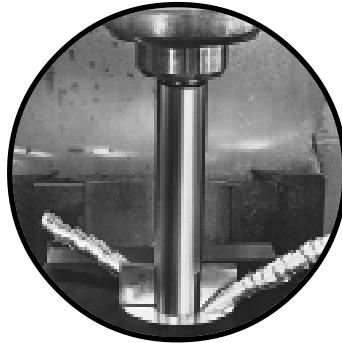


MULTI-TOOL SYSTEM

A simple, easy to use system for producing accurate holes at an economical cost!

- Produces accurate holes in a wide variety of machine tools from fixed or portable, light duty, low horsepower equipment to heavy duty applications in CNC lathes and machining centers
- For drilling, boring, spotfacing and counterboring applications from 7/8" to 4" in diameter
- Replaces costly taper shank drills
- A wide range of shank styles allows for easy adaptability throughout the shop

Made in USA



- Blades are available in high speed steel, cobalt, carbide indexable & titanium nitride coating for machining a wide range of material
- Blades can be modified for machining special step diameters or other profiles
- Standard sets available from stock
- A preferred choice for most machine shop, maintenance department, and light production holmaking applications

Piloted Holder



Auxiliary Pilot and Set Screw

Blade



Pilot Drill



SETS












Sets are available in both the 3/4" Pilot "D" Series for general purpose applications and the 1" Pilot "E" Series for those heavy duty job requirements.

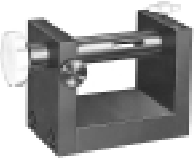
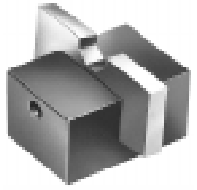


— THE MULTI-TOOL SYSTEM — BLADES

Select the same cutting speeds and feed rates for Multi -Tool Blades as you would for drills of the same size.

| | | |
|--|--|---|
| <p>HIGH SPEED STANDARD BLADE* <i>*May be TiN Coated for extended life</i></p>  <p>For General Purpose Applications on Ferrous and Non-Ferrous Materials Available in Standard "D" Series and Heavy Duty "E" Series</p> | <p>HIGH SPEED COMBINATION BLADE* <i>*May be TiN Coated for extended life</i></p>  <p>For Forward and Backward Counterbore and Spotface Applications Available in Standard "D" Series and Heavy Duty "E" Series</p> | <p>S-TYPE BLADE</p>  <p>For Large Diameter Holes (3-1/2" to 6") Heavy Duty "E" Series Only</p> |
| <p>COBALT STANDARD BLADE</p>  <p>For General Purpose Applications on Abrasive & Difficult-to-Machine Materials Heavy Duty "E" Series Only</p> | <p>COBALT COMBINATION BLADE</p>  <p>For Forward and Backward Counterbore & Spotface Applications on Abrasive & Difficult-to-Machine Materials</p> | <p>SPECIAL ORDER CHAMFERING BLADE</p>  <p>For Holes up to 4" Available in Standard "D" Series and Heavy Duty "E" Series</p> |
| <p>ADJUSTABLE DIAMETER CARBIDE INDEXABLE BLADE</p>  <p>For Use as a Single Point Cutting Tool or Boring Bar Heavy Duty "E" Series Only</p> | <p>FIXED DIAMETER CARBIDE INDEXABLE BLADE</p>  <p>For Higher Surface Speeds in Boring and Counterboring Heavy Duty "E" Series Only</p> | <p>SPECIAL ORDER MULTI-DIAMETER BLADE</p>  <p>For Multi-Diameter Geometries in a Single Pass Available in Standard "D" Series and Heavy Duty "E" Series</p> |

◆ BLADE GRINDING FIXTURES

| <p>RESIZING FIXTURE TOOL NO. BRF2 PRICE EACH — \$74.00</p>  <p>This fixture is designed for resizing blades up to 3" in diameter while maintaining concentricity. Standard blades can be modified to special diameters. The correct back taper is built into the fixture. Made with two index stops, the blade O.D. is relieved on the same set up after grinding the O.D. to desired size on any surface grinder.</p> | <p><i>Blade Grinding Fixtures make regrinding and blade modification simple while maintaining accuracy!</i></p> <p>ARBOR FOR "D" SERIES BLADES TOOL NO. BRF2D PRICE EACH — \$40.00</p> <p>ARBOR FOR "E" SERIES BLADES TOOL NO. BRF2E PRICE EACH — \$40.00</p> <table border="1" data-bbox="649 1812 1071 1927"> <thead> <tr> <th colspan="3">REPLACEMENT PART</th> </tr> <tr> <th>Part No.</th> <th>Description</th> <th>Price</th> </tr> </thead> <tbody> <tr> <td>SS1032-516</td> <td>Set Screw for BRF1</td> <td>.30</td> </tr> </tbody> </table> <p>Replacement parts for Resizing Fixture and arbors are available. Please inquire</p> | REPLACEMENT PART | | | Part No. | Description | Price | SS1032-516 | Set Screw for BRF1 | .30 | <p>RESHARPENING FIXTURE TOOL NO. BRF1 PRICE EACH — \$19.50</p>  <p>The Resharpener Fixture accommodates all blade diameters and thicknesses. The correct end tooth relief angle is built into the fixture making resharpener simple, accurate, and inexpensive on any surface grinder.</p> |
|--|---|------------------|--|--|----------|-------------|-------|------------|--------------------|-----|--|
| REPLACEMENT PART | | | | | | | | | | | |
| Part No. | Description | Price | | | | | | | | | |
| SS1032-516 | Set Screw for BRF1 | .30 | | | | | | | | | |



PILOTED HOLDERS-MACHINE TOOL

Select from a wide variety of blade holders for use in all types of hole making equipment. Below you find examples of the different types of equipment the Multi - tool Piloted Holders can be utilized in.

THE MULTI -TOOL SYSTEM CHANGES THE WAY YOU LOOK AT HOLE MAKING!

USE WITH BRIDGEPORT® TYPE MILLING MACHINES

5/8" Shank 21/32" Pilot
"D" Series **DH20**



Straight Shank
3/4" – "D" Series **DH23**
and 1" – "E" Series **EH32**



3/4" Reduced Shank
15/16" Pilot **EH30** and 1-1/16" Pilot **EH34**
"E" Series



R-8 Bridgeport Shank
"D" Series **DHR8** and "E" Series **EHR8**



USE WITH LATHES AND TURNING CENTERS

5/8" Shank 21/32" Pilot
"D" Series **DH20**



Lathe Shank w/Flats
(Mounts in tool post so power feed can be utilized)
3/4" – "D" Series **DHS23**
and 1" – "E" Series **EHS32**



Morse Taper Shank
No. 2 – "D" Series **DH2T**
No. 3 **EH3T** and No. 4 **EH4T**
"E" Series*



3/4" Shank 13/16" Pilot
"D" Series **DH24**



USE WITH MAG DRILL

1/2" Reduced Shank
with 3 Equal Flats
"D" Series **DH1** and "E" Series **EH1**



5/8" Shank 21/32" Pilot
"D" Series **DH20**



3/4" Reduced Shank
15/16" Pilot **EH30** and 1-1/16" Pilot **EH34**
"E" Series



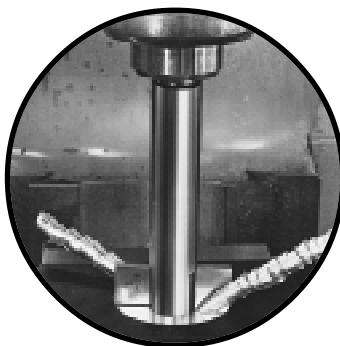
Morse Taper Shank
No. 2 – "D" Series **DH2T**
No. 3 **EH3T** and No. 4 **EH4T**
"E" Series*



REFERENCE CHART



*No. 3 and No. 4 Morse Taper "E" Series Shanks are also available with long and extra long reach.



A WIDE RANGE OF SHANK STYLES FOR EASY ADAPTABILITY THROUGHOUT ANY MACHINE SHOP!

USE WITH DRILL MILL

1/2" Reduced Shank with 3 Equal Flats
"D" Series **DH1** and "E" Series **EH1**



USE WITH DRILL PRESS

3/4" Reduced Shank
15/16" Pilot **EH30** and 1-1/16" Pilot **EH34**
"E" Series



USE WITH CNC MACHINING CENTER

Straight Shank
3/4" – "D" Series **DH23**
and 1" – "E" Series **EH32**



5/8" Shank 21/32" Pilot
"D" Series **DH20**



1/2" Reduced Shank with 3 Equal Flats
"D" Series **DH1** and "E" Series **EH1**



3/4" Reduced Shank
15/16" Pilot **EH30** and 1-1/16" Pilot **EH34**
"E" Series



3/4" Reduced Shank
15/16" Pilot **EH30** and 1-1/16" Pilot **EH34**
"E" Series



5/8" Shank 21/32" Pilot
"D" Series **DH20**



USE WITH RADIAL DRILL

Straight Shank
3/4" – "D" Series **DH23**
and 1" – "E" Series **EH32**



3/4" Shank 13/16" Pilot
"D" Series **DH24**



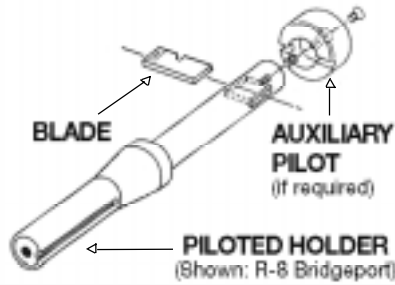
Morse Taper Shank
No. 2 – "D" Series **DH2T**
No. 3 **EH3T** and No. 4 **EH4T**
"E" Series*



Morse Taper Shank
No. 2 – "D" Series **DH2T**
No. 3 **EH3T** and No. 4 **EH4T**
"E" Series*



THE MULTI-TOOL SYSTEM



◆ "D" PILOTED HOLDERS

1/2" Reduced Shank w/ 3 Equal Flats DH1



5/8" Diameter Shank*- 21/32" Pilot DH20



3/4" Lathe Shank w/ 4 (5/8") Sq. Flats** DHS23



3/4" Straight Shank DH23



3/4" Diameter Shank*- 13/16" Pilot DH24



No. 2 Morse Taper Shank DH2T

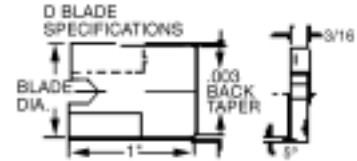


R-8 Bridgeport Shank DHR8



◆ STANDARD BLADES

D Series – 3/16" Thick High Speed Steel



From 1-17/32" — 2" Auxiliary Pilot DX15 Required
From 2-1/32" — 2-1/2" Auxiliary Pilot DX20 Required

| BLADE DIA. | TOOL NO. | PRICE EACH | BLADE DIA. | TOOL NO. | PRICE EACH | BLADE DIA. | TOOL NO. | PRICE EACH |
|------------|----------|------------|------------|----------|------------|------------|----------|------------|
| 7/8 | DB28 | 17.08 | 1-5/16 | DB42 | 20.40 | 1-27/32 | DB59 | 24.01 |
| 29/32 | DB29 | 17.25 | 1-11/32 | DB43 | 20.64 | 1-7/8 | DB60 | 24.01 |
| 15/16 | DB30 | 17.25 | 1-3/8 | DB44 | 20.64 | 1-29/32 | DB61 | 24.73 |
| 31/32 | DB31 | 18.11 | 1-13/32 | DB45 | 20.99 | 1-15/16 | DB62 | 24.73 |
| 63/64 | DB315 | 18.11 | 1-7/16 | DB46 | 20.99 | 1-31/32 | DB63 | 25.07 |
| 1 | DB32 | 18.11 | 1-15/32 | DB47 | 21.40 | 2 | DB64 | 25.07 |
| 1-1/64 | DB325 | 18.63 | 1-31/64 | DB475 | 21.39 | 2-1/32 | DB65 | 26.25 |
| 1-1/32 | DB33 | 18.63 | 1-1/2 | DB48 | 21.39 | 2-1/16 | DB66 | 26.25 |
| 1-3/64 | DB335 | 18.63 | 1-17/32 | DB49 | 21.80 | 2-3/32 | DB67 | 27.49 |
| 1-1/16 | DB34 | 18.63 | 1-9/16 | DB50 | 21.80 | 2-1/8 | DB68 | 27.49 |
| 1-3/32 | DB35 | 18.98 | 1-19/32 | DB51 | 22.29 | 2-5/32 | DB69 | 28.36 |
| 1-7/64 | DB355 | 18.98 | 1-5/8 | DB52 | 22.29 | 2-3/16 | DB70 | 28.36 |
| 1-1/8 | DB36 | 18.98 | 1-21/32 | DB53 | 22.70 | 2-7/32 | DB71 | 28.72 |
| 1-9/64 | DB365 | 19.44 | 1-11/16 | DB54 | 22.70 | 2-1/4 | DB72 | 28.72 |
| 1-5/32 | DB37 | 19.44 | 1-23/32 | DB55 | 22.96 | 2-5/16 | DB74 | 29.33 |
| 1-3/16 | DB38 | 19.44 | 1-47/64 | DB555 | 22.96 | 2-3/8 | DB76 | 30.13 |
| 1-7/32 | DB39 | 19.84 | 1-3/4 | DB56 | 22.96 | 2-7/16 | DB78 | 31.05 |
| 1-1/4 | DB40 | 19.84 | 1-25/32 | DB57 | 23.23 | 2-1/2 | DB80 | 31.86 |
| 1-9/32 | DB41 | 20.40 | 1-13/16 | DB58 | 23.23 | - | - | - |

◆ AUXILIARY PILOTS

D Series Standard Duty

For Producing Holes in Steel Larger than 1-1/2" in Diameter



| DIAMETER | BLADE DIA. RANGE | TOOL NO. | PRICE EACH |
|----------|------------------|----------|------------|
| 1-1/2" | 1-17/32" – 2" | DX15 | 21.00 |
| 2" | 2-1/32" – 2-1/2" | DX20 | 22.99 |

◆ "D" SERIES OPERATING INSTRUCTIONS

With the use of auxiliary pilots, holes may be drilled up to 2-1/2" diameters in steel while maintaining optimum rigidity with low horsepower.

Step 1 Drill first pilot hole with a conventional 3/4" twist drill or the 3/4" Multi-Tool threaded pilot drill.

Step 2 For Finish Hole 1-1/2" or Less

Insert finish size blade into piloted holder and drill hole to size.

For Finish Hole Over 1-1/2" to 2"

Insert 1-1/2" blade in piloted holder and enlarge hole to 1-1/2". Next, insert finish size blade into holder, attach 1-1/2" auxiliary pilot and drill hole to size.

For Finish Hole Over 2"

Insert 1-1/2" blade in piloted holder and enlarge hole to 1-1/2". Next, insert 2" blade in piloted holder, attach 1-1/2" auxiliary pilot, and enlarge hole to 2". Finally, insert finish size blade into holder, attach 2" auxiliary pilot and drill hole to size.

Note: When drilling certain *non-ferrous* metals, it may be possible to drill up to a 2-1/2" hole in one pass without the use of one or both auxiliary pilots.

Cutting fluids are always required when machining metals (except for cast iron) for safe operation and longer tool life. Select the appropriate fluid for the material to be machined.

Select the same cutting speeds and feed rates as you would for drills of same size.

| SHANK STYLE | PILOT DIA. | OAL | DEPTH OF CUT | TOOL NO. | PRICE EACH |
|------------------------------|------------|-------|--------------|----------|------------|
| 1/2" Reduced Shank | 3/4" | 6" | 4" | DH1 | 56.35 |
| 5/8" Dia.* - 21/32" Pilot | 21/32 | 7-1/2 | 5-1/4 | DH20 | 48.88 |
| 3/4" Lathe Shk. w/sq flats** | 3/4 | 7-1/2 | 5-1/4 | DHS23 | 68.48 |
| 3/4" Straight Shank | 3/4 | 7-1/2 | 5-1/4 | DH23 | 55.20 |
| 3/4" Shank*-13/16" Pilot | 13/16 | 7-1/2 | 5-1/4 | DH24 | 68.48 |
| #2 M.T. Shank | 3/4 | 7-1/2 | 4-3/8 | DH2T | 60.54 |
| R-8 Bridgeport Shank | 3/4 | 8-1/4 | 4 | DHR8 | 97.75 |

Note: *DH20 and DH24 are not offered in 3/4" pilot diameter and cannot be used with pilot drill or auxiliary pilot.
**DHS23 is designed for use in tool post with power feed

◆ PILOT DRILLS



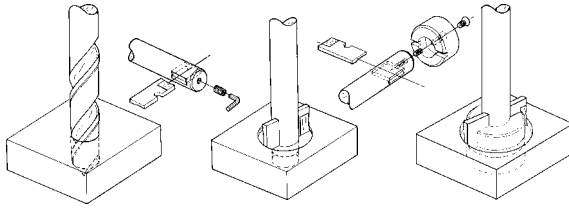
2" Flute Length – 2-3/4" OAL
3/4 Dia. – 118° Point
5/16-24 Thread
Two flats on drill barrel for easy removal

HIGH SPEED STEEL
This threaded shank drill was specially designed for the Multi-Tool piloted holder. It allows single-positioning, one pass operations.

TOOL NUMBER – DBP34
PRICE EACH – \$51.75

◆ REPLACEMENT PARTS

| | | |
|------------|--------------------------------------|-----|
| SS51624-38 | Set Screw for "D" Series Holders | .50 |
| CF51624-58 | Auxiliary Pilot Screw for "D" Series | .50 |



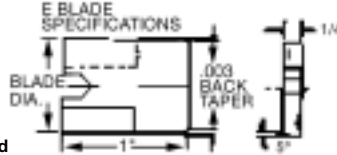
Drill Pilot Hole With Pilot Drill or Conventional Twist Drill

Insert Blade For Drilling Without Auxiliary Pilot

Insert Blade & Attach Auxiliary Pilot For Larger Diameter Hole

HEAVY DUTY BLADES

E Series – 1/4" Thick High Speed Steel or Cobalt



From 2-1/16" — 2-1/2" Auxiliary Pilot EX20 Required
From 2-9/16" — 4" Auxiliary Pilot EX25 Required

| BLADE DIA. | HIGH SPEED STEEL | | COBALT | | BLADE DIA. | HIGH SPEED STEEL | | COBALT | |
|------------|------------------|------------|----------|------------|------------|------------------|------------|----------|------------|
| | TOOL NO. | PRICE EACH | TOOL NO. | PRICE EACH | | TOOL NO. | PRICE EACH | TOOL NO. | PRICE EACH |
| 1-1/8 | EB36 | 19.55 | CEB36 | 29.33 | 2-5/16 | EB74 | 31.68 | CEB74 | 47.38 |
| 1-5/32 | EB37 | 20.59 | - | - | 2-3/8 | EB76 | 32.49 | CEB76 | 48.88 |
| 1-3/16 | EB38 | 20.59 | CEB38 | 30.59 | 2-7/16 | EB78 | 33.35 | - | - |
| 1-7/32 | EB39 | 21.28 | - | - | 2-1/2 | EB80 | 34.21 | CEB80 | 51.41 |
| 1-1/4 | EB40 | 21.28 | CEB40 | 30.79 | 2-9/16 | EB82 | 34.66 | CEB82 | 52.34 |
| 1-5/16 | EB42 | 21.97 | CEB42 | 31.34 | 2-5/8 | EB84 | 35.13 | CEB84 | 53.20 |
| 1-3/8 | EB44 | 21.97 | CEB44 | 31.63 | 2-11/16 | EB86 | 35.88 | - | - |
| 1-7/16 | EB46 | 22.86 | CEB46 | 31.91 | 2-3/4 | EB88 | 36.63 | CEB88 | 55.43 |
| 1-1/2 | EB48 | 23.69 | CEB48 | 32.18 | 2-13/16 | EB90 | 37.12 | - | - |
| 1-9/16 | EB50 | 24.35 | CEB50 | 33.12 | 2-7/8 | EB92 | 37.93 | CEB92 | 57.39 |
| 1-5/8 | EB52 | 24.91 | CEB52 | 34.24 | 2-15/16 | EB94 | 38.87 | - | - |
| 1-11/16 | EB54 | 25.24 | CEB54 | 35.37 | 3 | EB96 | 39.73 | CEB96 | 59.92 |
| 1-3/4 | EB56 | 25.62 | CEB56 | 36.57 | 3-1/16 | EB98 | 41.29 | - | - |
| 1-13/16 | EB58 | 26.29 | CEB58 | 37.94 | 3-1/8 | EB100 | 42.21 | - | - |
| 1-7/8 | EB60 | 26.91 | CEB60 | 39.33 | 3-1/4 | EB104 | 43.13 | - | - |
| 1-15/16 | EB62 | 27.37 | CEB62 | 40.83 | 3-3/8 | EB106 | 44.62 | - | - |
| 2 | EB64 | 28.00 | CEB64 | 42.26 | 3-1/2 | EB112 | 45.94 | CEB112 | 69.58 |
| 2-1/16 | EB66 | 25.52 | CEB66 | 43.13 | 3-5/8 | EB116 | 47.78 | - | - |
| 2-1/8 | EB68 | 29.04 | CEB68 | 44.08 | 3-3/4 | EB120 | 49.19 | - | - |
| 2-3/16 | EB70 | 30.48 | CEB70 | 45.14 | 3-7/8 | EB124 | 50.31 | - | - |
| 2-1/4 | EB72 | 30.99 | CEB72 | 45.89 | 4 | EB128 | 51.58 | CEB128 | 77.91 |

AUXILIARY PILOTS

E Series Heavy Duty

For Producing Holes in Steel Larger than 2" in Diameter



| DIAMETER | BLADE DIA. RANGE | TOOL NO. | PRICE EACH |
|----------|------------------|----------|------------|
| 2 | 2-1/16 – 2-1/2 | EX20 | 22.99 |
| 2-1/2 | 2-9/16 – 3-1/2 | EX25 | 24.99 |

"E" SERIES OPERATING INSTRUCTIONS

With the use of auxiliary pilots, holes may be drilled up to 3" diameters in steel and up to 4" diameters in non-ferrous material while maintaining optimum rigidity with low horsepower.

Step 1 Drill first pilot hole with a conventional 1" twist drill or the 1" Multi-Tool threaded pilot drill.

Step 2 For Finish Hole 2" or Less
Insert finish size blade into piloted holder and drill hole to size.

For Finish Hole Over 2" to 2-1/2"

Insert 2" blade in piloted holder and enlarge hole to 2". Next, insert finish size blade into holder, attach 2" auxiliary pilot and drill hole to size.

For Finish Hole Over 2-1/2"

Insert 2" blade in piloted holder and enlarge hole to 2". Next, insert 2-1/2" blade in piloted holder, attach 2" auxiliary pilot, and enlarge hole to 2-1/2". Finally, insert finish size blade into holder, attach 2-1/2" auxiliary pilot and drill hole to size.

Note: When drilling certain *non-ferrous* metals, it may be possible to drill up to a 4" hole in one pass without the use of one or both auxiliary pilots.

Cutting fluids are always required when machining metals (except for cast iron) for safe operation and longer tool life. Select the appropriate fluid for the material to be machined.

Select the same cutting speeds and feed rates as you would for drills of same size.

"E" PILOTED HOLDERS

1/2" Reduced Shank w/ 3 Equal Flats



EH1
1"

3/4" Reduced Shank * 15/16" Pilot



EH30
15/16"

3/4" Reduced Shank * 1-1/16" Pilot



EH34
1" - 1/16"

1" Lathe Shank w/4 (7/8") Sq. Flats **



EHS32
1"

1" Straight Shank



Regular Length EH32
Long Length EH32L
Ex. Long Length EH32XL
1"

#3 Morse Taper Shank



Regular Length EH3T
Long Length EH3TL
Ex. Long Length EH3TXL

#4 Morse Taper Shank



Regular Length EH4T
Long Length EH4TL
Ex. Long Length EH4TXL

R-8 Bridgeport Shank



EHR8
1"

| SHANK STYLE | PILOT DIA. | OAL | DEPTH OF CUT | TOOL NO. | PRICE EACH |
|-----------------------------|------------|-------|--------------|----------|------------|
| 1/2" Reduced Shank | 1 | 6 | 4 | EH1 | 88.49 |
| 3/4" Dia. Reduced Shank* | 15/16 | 8 | 5-3/4 | EH30 | 88.72 |
| 3/4" Dia. Reduced Shank* | 1-1/16 | 8 | 5-3/4 | EH34 | 94.59 |
| 1" Lathe Shank w/Sq Flats** | 1 | 10 | 7-3/4 | EHS32 | 88.72 |
| 1" Straight Shank Reg. | 1 | 10 | 7-3/4 | EH32 | 72.16 |
| 1" Straight Shank Long | 1 | 16 | 12 | EH32L | 123.86 |
| 1" Straight Shank Ex. Long | 1 | 22 | 18 | EH32XL | 212.35 |
| #3 M.T. Shank Reg. | 1 | 10 | 6 | EH3T | 75.79 |
| #3 M.T. Shank Long | 1 | 16 | 12 | EH3TL | 132.83 |
| #3 M.T. Shank Ex. Long | 1 | 22 | 18 | EH3TXL | 226.95 |
| #4 M.T. Shank Reg. | 1 | 11 | 6 | EH4T | 108.75 |
| #4 M.T. Shank Long | 1 | 17 | 12 | EH4TL | 155.42 |
| #4 M.T. Shank Ex. Long | 1 | 23 | 18 | EH4TXL | 256.45 |
| R-8 Bridgeport Shank | 1 | 9-1/4 | 5 | EHR8 | 103.21 |

Note: * EH30 and EH34 are not offered in 1" Pilot Diameter and cannot be used with pilot drill or auxiliary pilot.

** EHS32 is designed for use in tool post with power feed.

PILOT DRILLS

HIGH SPEED STEEL

This threaded shank drill was specially designed for the Multi-Tool piloted holder. It allows single-positioning, one pass operations.



2-1/4" Flute Length – 3" OAL
118° Point – 1/2-20 Thread
Two flats on drill barrel for easy removal

TOOL NUMBER – EBP10
PRICE EACH – \$56.93

REPLACEMENT PARTS

| | | |
|-----------|--------------------------------------|-----|
| SS1220-12 | Set Screw for "E" Series Holders | .90 |
| CF1220-34 | Auxiliary Pilot Screw for "E" Series | .90 |

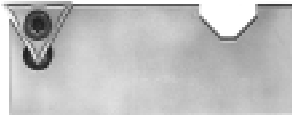


◆ MULTI-TOOL BLADES

INDEXABLE CARBIDE BLADES

The Multi -Tool System offers you these indexable carbide blades for heavy duty applications where higher surface speeds are needed and longer tool life is desired.

FIXED DIAMETER BLADE



FIXED DIAMETER BLADES ARE PRIMARILY FOR USE IN 1" LATHE SHANK WITH FOUR SQUARE FLATS. (EHS32)

May be run at higher surface speeds than high speed steel blades. When the cutting edge becomes dull, a new cutting edge can be indexed without removing the blade from the holder.

| A | | B | | Auxiliary Pilot Required | Blade No. A or B | Price Each |
|---|--|---|--|--------------------------|------------------|------------|
| Hole diameter produced when using TPGH-321 (1/64" radius inserts) | | Hole diameter produced when using TPGH-322 (1/32" radius inserts) | | | | |
| 1-7/8 | | 1-27/32 | | — | EBC60 | 28.75 |
| 2 | | 1-31/32 | | — | EBC64 | 30.82 |
| 2-1/8 | | 2-3/32 | | EX20 | EBC68 | 31.63 |
| 2-1/4 | | 2-7/32 | | EX20 | EBC72 | 33.35 |
| 2-3/8 | | 2-11/32 | | EX20 | EBC76 | 34.39 |
| 2-1/2 | | 2-15/32 | | EX20 | EBC80 | 37.03 |
| 2-5/8 | | 2-19/32 | | EX25 | EBC84 | 37.69 |
| 2-3/4 | | 2-23/32 | | EX25 | EBC88 | 39.68 |
| 2-7/8 | | 2-27/32 | | EX25 | EBC92 | 41.23 |
| 3 | | 2-31/32 | | EX25 | EBC96 | 43.59 |

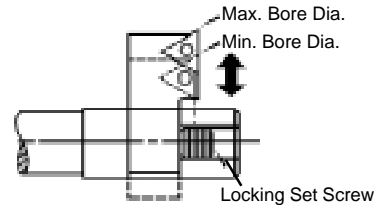
ADJUSTABLE DIAMETER BLADE



ADJUSTABLE DIAMETER BLADES ARE PRIMARILY FOR USE IN 1" LATHE SHANK WITH FOUR SQUARE FLATS (EHS32)

By positioning the blade to the cutting diameter required, you can transform the MULTI-TOOL into an adjustable single point cutting tool or boring bar. Simply loosen the locking screw in the piloted holder, then adjust the blade to desired diameter from 2" to 3-1/4". Once the size has been set using an indicator or micrometer gauge, the inserts can be easily indexed or changed without losing size!

| Blade Cutting Range | Auxiliary Pilot Required | Blade No. | Price Each |
|---------------------|--------------------------|-----------|------------|
| 2 — 2-3/4 | EX20 | EBC200 | 37.95 |
| 2 -1/2 — 3-1/4 | EX25 | EBC250 | 48.30 |



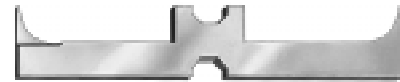
| Insert No. | Radius | I.C. | Thickness | Price Each | | |
|------------|--------|------|-----------|------------|-----------|-------------|
| | | | | C-2 | C-5 & C-6 | TiN Coated* |
| TPGH321 | 1/64 | 3/8 | 1/8 | 5.13 | 5.70 | 6.95 |
| TPGH322 | 1/32 | 3/8 | 1/8 | 5.13 | 5.70 | 6.95 |

*C-5 & C-6 Grade TiN Coated

| REPLACEMENT PARTS LIST | | |
|------------------------|-----------------------------|------------|
| Part No. | Description | Price Each |
| TF832-285 | Torx® Drive Flat Head Screw | 1.75 |
| CTW-10 | Torx® Wrench | 2.45 |

S-TYPE BLADES FOR 3-1/2" TO 6-1/4" DIAMETER HOLES

- High Speed Steel
- Can be used on low horsepower portable magnetic or fixed machine drilling
- Effective in steel up to 1/2" Thick (up to 1" if cut from both sides)
- Adjust to uneven work surfaces and small misalignments



The S-Type Blade is held with a special spring loaded set screw, producing a floating action which adjusts to uneven work surfaces or small misalignments between spindle and workpiece.

If depth of cut is greater than 1/2", advance piloted holder through the pilot hole and insert blade in an upward orientation. Reverse spindle and feed in upward cutting direction to maximum blade depth.

Remove blade, withdraw piloted holder and reinsert blade in downward cutting position with right hand rotation and complete cut to break through.

NOT RECOMMENDED FOR USE IN FLATTED LATHE PILOTTED HOLDERS.

| Blade Dia. | Blade No. | Price Each | Blade Dia. | Blade No. | Price Each |
|------------|-----------|------------|------------|-----------|------------|
| 3-1/2 | EBS112 | 61.53 | 5-1/4 | EBS168 | 102.93 |
| 3-3/4 | EBS120 | 66.70 | 5-1/2 | EBS176 | 109.25 |
| 4 | EBS128 | 73.31 | 5-3/4 | EBS184 | 114.14 |
| 4-1/2 | EBS144 | 85.10 | 6 | EBS192 | 122.40 |
| 4-3/4 | EBS152 | 91.77 | 6-1/4 | EBS200 | 128.80 |
| 5 | EBS160 | 97.75 | | | |

SET SCREW
Must be used with S-Type Blade for proper operation.
PART NO. SS1
PRICE \$8.80



◆ MULTI-TOOL BLADES

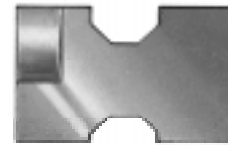
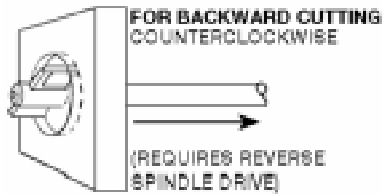


COMBINATION BLADES

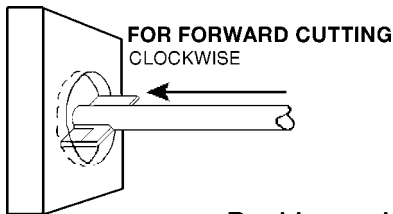
Uses same auxiliary pilots as standard blades

FOR FORWARD AND BACKWARD CUTTING

PATENTED



- Available in High Speed Steel
- For Standard Cap Screws
- Allows more chip clearance
- For use in confined areas
- Can be modified for special configurations
- With the same piloted holder you can forward counterbore, back counterbore and spotface

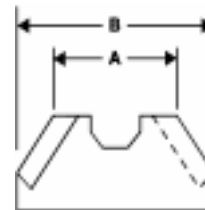


NOTE: Select the same cutting speeds and feed rates as you would for drills of the same size. When ordering, use standard blade number for size and add a suffix of "DN" to indicate blade style.

Double notched prices: add \$5.50 to standard D Series H.S. blade prices and \$6.50 to standard E Series H.S. blade prices.

STANDARD BLADE PROFILES

90° CHAMFERING BLADES



These blades are used to chamfer holes from 1" to 4-3/8" in diameter. When used in the same set up and holder which produced the hole, close concentricity can be achieved. [Please inquire](#)

| E-SERIES CHAMFERING RANGE | | | |
|------------------------------|------------------------------------|-------|------------|
| TOOL NO. | Range of Diameter Which Can Be Cut | | PRICE EACH |
| | Smallest Dia. to Largest Dia. | | |
| | A | B | |
| EBA44 | 1 | 1-3/8 | 25.73 |
| EBA56 | 1-3/8 | 1-3/4 | 27.02 |
| EBA68 | 1-3/4 | 2-1/8 | 28.73 |
| EBA80 | 2-1/8 | 2-1/2 | 33.04 |
| EBA92 | 2-1/2 | 2-7/8 | 38.00 |
| EBA104 | 2-7/8 | 3-1/4 | 43.70 |
| EBA116 | 3-1/4 | 3-5/8 | 48.07 |
| EBA128 | 3-5/8 | 4 | 52.88 |
| EBA140 | 4 | 4-3/8 | 58.16 |

| D-SERIES CHAMFERING RANGE | | | |
|------------------------------|------------------------------------|-------|------------|
| TOOL NO. | Range of Diameter Which Can Be Cut | | PRICE EACH |
| | Smallest Dia. to Largest Dia. | | |
| | A | B | |
| DBA36 | 3/4 | 1-1/8 | 19.97 |
| DBA44 | 1 | 1-3/8 | 21.97 |
| DBA56 | 1-3/8 | 1-3/4 | 24.16 |
| DBA68 | 1-3/4 | 2-1/8 | 26.58 |
| DBA80 | 2-1/8 | 2-1/2 | 29.23 |
| DBA92 | 2-1/2 | 2-7/8 | 32.16 |



SPECIAL ORDER MULTI-DIAMETER AND CHAMFERING BLADES

Do you have a job with unique specifications?
Counterbore profiles may be special ordered to your print.
[Please inquire.](#)



♦ MULTI-TOOL SETS

STANDARD DUTY "D" SERIES



Shown:
1/2" Reduced Shank Set

1/2" REDUCED SHANK SET

Contains 1 piece of each:

- DH1-3/4" Piloted Holder, 1/2" Shank
- 3/4" H.S. Silver and Deming 1/2" Shank Drill
- #6 Combination Drill and Countersink (Above tools are 6" overall for quick single set up)
- 5/32" Hex Wrench
- High Speed Steel D Series Blades - 1 each of: 1-1/4", 1-1/16", 1-1/8", 1-3/16", 1-1/4", 1-5/16", 1-3/8", 1-7/16", 1-1/2"

SET NO. DS1 — SET PRICE \$339.00

Set with chamfering blades:

SET NO. DS1A — SET PRICE \$360.00

R-8 SHANK SET

Contains 1 piece of each:

- DHR8 - 3/4" Piloted Holder, R-8 Shank
- 3/4" High Speed Twist Drill, Straight Shank
- DX15 - 1-1/2" Auxiliary Pilot
- DX20 - 2" Auxiliary Pilot
- Hex Wrench
- High Speed Steel D Series Blades - 1 each of: 1-1/4", 1-5/16", 1-3/8", 1-1/2", 1-5/8", 1-3/4", 1-7/8", 2", 2-1/8", 2-1/4", 2-3/8", 2-1/2"

SET NO. DS7 — SET PRICE \$459.00

Set with chamfering blades:

SET NO. DS7A — SET PRICE \$499.00



Shown:
Straight Shank Set

STRAIGHT SHANK SET

Contains 1 piece of each:

- DH23-3/4" Piloted Holder, Straight Shank
- 3/4" High Speed Twist Drill, Straight Shank
- DX15 - 1-1/2" Auxiliary Pilot
- DX20 - 2" Auxiliary Pilot
- 5/32" and 3/16" Hex Wrenches
- High Speed Steel D Series Blades - 1 each of: 1-1/4", 1-5/16", 1-3/8", 1-1/2", 1-5/8", 1-3/4", 1-7/8", 2", 2-1/8", 2-1/4", 2-3/8", 2-1/2"

SET NO. DS2 — SET PRICE \$419.00

Set with chamfering blades:

SET NO. DS2A — SET PRICE \$465.00

TAPER SHANK SET

Contains 1 piece of each:

- DH2T- 3/4" Piloted Holder, #2 M.T. Shank
- 3/4" High Speed Twist Drill, #2 M.T. Shank
- DX15 - 1-1/2" Auxiliary Pilot
- DX20 - 2" Auxiliary Pilot
- 5/32" and 3/16" Hex Wrenches
- High Speed Steel D Series Blades - 1 each of: 1-1/4", 1-5/16", 1-3/8", 1-1/2", 1-5/8", 1-3/4", 1-7/8", 2", 2-1/8", 2-1/4", 2-3/8", 2-1/2"

SET NO. DS3 — SET PRICE \$429.00

Set with chamfering blades:

SET NO. DS3A — SET PRICE \$475.00

HEAVY DUTY "E" SERIES

STRAIGHT SHANK SET

HIGH SPEED OR COBALT BLADES

Contains 1 piece of each:

- EH32 - 1" Piloted Holder, Straight Shank
- 1" High Speed Twist Drill, Straight Shank
- EX20 - 2" Auxiliary Pilot
- EX25 - 2-1/2" Auxiliary Pilot
- 1/4" and 5/16" Hex Wrenches
- E Series Blades - 1 each of: 1-1/4", 1-3/8", 1-1/2", 1-5/8", 1-3/4", 2", 2-1/4", 2-1/2", 2-3/4", 3"

HIGH SPEED SET NO. ES4 — SET PRICE \$477.00

COBALT SET NO. ESC4 — SET PRICE \$609.00

Set with chamfering blades:

SET NO. ES5A — SET PRICE \$565.00

1/2" REDUCED SHANK SET

HIGH SPEED OR COBALT BLADES

Contains 1 piece of each:

- EH1-1" Piloted Holder, 1/2" Shank
- 1" High Speed Silver and Deming 1/2" Shank
- #6 Combination Drill and Countersink (Above tools are 6" overall for quick, single set up)
- 1/4" and 5/16" Hex Wrenches
- E Series Blades - 1 each of: 1-1/8", 1-3/16", 1-1/4", 1-5/16", 1-3/8", 1-7/16", 1-1/2", 1-5/8", 1-3/4", 1-7/8", 2"

HIGH SPEED SET NO. ES1 — SET PRICE \$454.00

COBALT SET NO. ESC1 — SET PRICE \$569.00

Set with chamfering blades:

SET NO. ES4A — SET PRICE \$565.00



Shown:
Taper Shank Set

TAPER SHANK SET

HIGH SPEED OR COBALT BLADES

Contains 1 piece of each:

- EH3T - 1" Piloted Holder, #3 M.T. Shank
- 1" High Speed Twist Drill, #3 M.T. Shank
- EX20 - 2" Auxiliary Pilot
- EX25 - 2-1/2" Auxiliary Pilot
- 1/4" and 5/16" Hex Wrenches
- E Series Blades - 1 each of: 1-1/4", 1-3/8", 1-1/2", 1-5/8", 1-3/4", 2", 2-1/4", 2-1/2", 2-3/4", 3"

HIGH SPEED SET NO. ES5 — SET PRICE \$477.00

COBALT SET NO. ESC5 — SET PRICE \$609.00

Set with chamfering blades:

SET NO. ES8A — SET PRICE \$579.00

R-8 SHANK SET

HIGH SPEED OR COBALT BLADES

Contains 1 piece of each:

- EHR8 - 1" Piloted Holder, R-8 Shank
- 1" High Speed Twist Drill, Straight Shank
- EX20 - 2" Auxiliary Pilot
- EX25 - 2-1/2" Auxiliary Pilot
- 1/4" and 5/16" Hex Wrenches
- E Series Blades - 1 each of: 1-1/4", 1-3/8", 1-1/2", 1-5/8", 1-3/4", 2", 2-1/4", 2-1/2", 2-3/4", 3"

HIGH SPEED SET NO. ES9 — SET PRICE \$509.00

COBALT SET NO. ESC9 — SET PRICE \$638.00

Set with chamfering blades:

SET NO. ES9A — SET PRICE \$595.00

◆ CAP SCREW COUNTERBORES

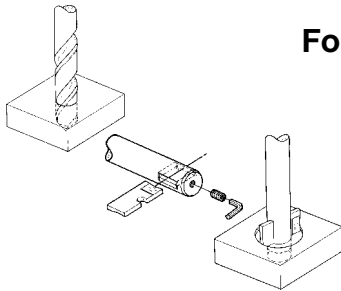
PATENTED



USES THE SAME SIMPLE DESIGN OF THE MULTI-TOOL SYSTEM

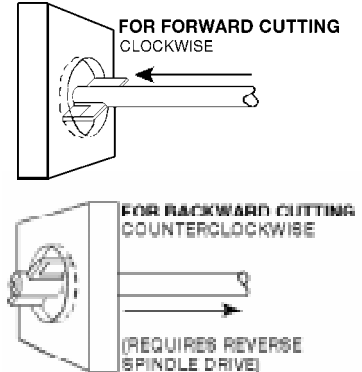
Designed to counterbore holes for standard cap screws. Using the same piloted holder, you can forward counterbore, back counterbore, and spotface. Just choose the appropriate blade for your application.

OPERATION



For Forward and Backward Applications

- STEP 1** Select the appropriate piloted holder and blade for the screw size needed.
- STEP 2** Insert the blade into the piloted holder and tighten the set screw.
- A) Forward counterboring- use in a clockwise direction
 B) Backward counterboring- use in a reverse spindle, counter-clockwise direction.



HIGH SPEED STEEL BLADES

- Back Counterbore • Spotface • Forward Counterbore
- Resharpen and modify blades to special diameters and unusual hole configurations
- Worn blades can be ground to smaller diameters and reused

FORWARD BLADES

| SCREW SIZE | CUTTING DIAMETER | BLADE THICKNESS | BLADE NUMBER | PRICE EACH |
|------------|------------------|-----------------|--------------|------------|
| No.10 | 21/64 | 1/16 | AB216 | 11.21 |
| 1/4 | 13/32 | 1/16 | AB13 | 11.44 |
| 5/16 | 1/2 | 3/32 | BB16 | 14.38 |
| 3/8 | 19/32 | 3/32 | BB19 | 15.87 |
| 7/16 | 11/16 | 3/32 | BB22 | 17.08 |
| 1/2 | 25/32 | 3/32 | BB25 | 17.83 |
| 5/8 | 1 | 3/16 | DB32 | 18.11 |
| 3/4 | 1-3/16 | 3/16 | DB38 | 19.44 |
| 7/8 | 1-3/8 | 1/4 | EB44 | 22.54 |
| 1 | 1-9/16 | 1/4 | EB50 | 24.35 |

BACKWARD BLADES

| SCREW SIZE | CUTTING DIAMETER | BLADE THICKNESS | BLADE NUMBER | PRICE EACH |
|------------|------------------|-----------------|--------------|------------|
| 1/4 | 13/32 | 1/16 | ABZ13 | 13.63 |
| 5/16 | 1/2 | 3/32 | BBZ16 | 17.14 |
| 3/8 | 19/32 | 3/32 | BBZ19 | 20.13 |
| 7/16 | 11/16 | 3/32 | BBZ22 | 20.59 |
| 1/2 | 25/32 | 3/32 | BBZ25 | 21.28 |
| 5/8 | 1 | 3/16 | DBZ32 | 21.74 |
| 3/4 | 1-3/16 | 3/16 | DBZ38 | 22.94 |
| 7/8 | 1-3/8 | 1/4 | EBZ44 | 26.65 |
| 1 | 1-9/16 | 1/4 | EBZ50 | 29.21 |

NOTE: Select the same cutting speeds and feed rates as you would for drills of same size.

COUNTERBORE SETS

FORWARD SET

SET NO. AB1

10 piece set contains 1 piece each Blade and piloted holder for the following screw sizes:
 No. 10, 1/4, 5/16, 3/8, 1/2
 supplied in wood block
SET PRICE — \$189.00

BACKWARD SET

SET NO. AB2

10 piece set contains 1 piece each Blade and piloted holder (reverse spindle required)
 1/4, 5/16, 3/8, 7/16, 1/2
 supplied in wood block
SET PRICE — \$215.00

NOTE: Blades of similar thickness may be used in any piloted holder which accommodates that thickness.

REPLACEMENT PARTS

| PART NO. | DESCRIPTION | PRICE EACH |
|------------|------------------------------------|------------|
| SS540-14 | Set Screw for AH8 and 9 | .50 |
| SS832-516 | Set Screw for BH11, 13, 15, and 16 | .50 |
| SS51624-38 | Set Screw for DH20 and 24 | .50 |
| SS1220-12 | Set Screw for EH30 and 34 | .90 |

PILOTED HOLDERS

| SCREW SIZE | PILOT DIAMETER | SHANK DIAMETER | OVERALL LENGTH | TOOL NUMBER | PRICE EACH |
|------------|----------------|----------------|----------------|-------------|------------|
| 10 | 13/64 | 1/4 | 4 | AH8 | 20.59 |
| 1/4 | 9/32 | 9/32 | 4 | AH9 | 22.43 |
| 5/16 | 11/32 | 11/32 | 4-3/8 | BH11 | 24.15 |
| 3/8 | 13/32 | 13/32 | 5 | BH13 | 25.30 |
| 7/16 | 15/32 | 15/32 | 5-3/4 | BH15 | 27.25 |
| 1/2 | 17/32 | 1/2 | 5-3/4 | BH16 | 28.75 |
| 5/8 | 21/32 | 5/8 | 7-1/2 | DH20 | 48.88 |
| 3/4 | 13/16 | 3/4 | 7-1/2 | DH24 | 68.48 |
| 7/8 | 15/16 | 3/4 | 8 | EH30 | 88.72 |
| 1 | 1-1/16 | 3/4 | 8 | EH34 | 94.59 |



MADE IN U.S.A.— EXCLUSIVELY BY A.P.T.

■ SUPER-BORE CARBIDE TIPPED BORING BARS

• HIGH QUALITY ALLOY STEEL FOR GREATER RIGIDITY

• PRECISION GROUND SHANKS

• OFFSET TAPER TO PROVIDE GREATER RIGIDITY AT CUTTING POINT

| 3/8" SHANK | | | | |
|------------|------------|----------------|----------|------------|
| Min. Bore | Bore Depth | Overall Length | Tool No. | Price Each |
| 5/16 | 3/4 | 2 | PA5S | 10.29 |
| 5/16 | 1-1/8 | 2-3/8 | PA5M | 10.75 |
| 5/16 | 1-1/2 | 2-3/4 | PA5L | 11.21 |
| 3/8 | 15/16 | 2-3/16 | PA3S | 11.44 |
| 3/8 | 1-13/32 | 2-21/32 | PA3M | 11.79 |
| 3/8 | 1-7/8 | 3-1/8 | PA3L | 12.59 |
| 7/16 | 1-1/8 | 2-3/8 | PA7S | 12.88 |
| 7/16 | 1-11/16 | 3-15/16 | PA7M | 13.11 |
| 7/16 | 2-1/4 | 3-1/2 | PA7L | 13.74 |

| 1/2" SHANK | | | | |
|------------|------------|----------------|----------|------------|
| Min. Bore | Bore Depth | Overall Length | Tool No. | Price Each |
| 5/16 | 3/4 | 2-1/4 | PB5S | 13.74 |
| 5/16 | 1-1/8 | 2-5/8 | PB5M | 14.09 |
| 5/16 | 1-1/2 | 3 | PB5L | 14.72 |
| 7/16 | 1-1/8 | 2-5/8 | PB7S | 15.24 |
| 7/16 | 1-11/16 | 3-3/16 | PB7M | 15.87 |
| 7/16 | 2-1/4 | 3-3/4 | PB7L | 16.04 |
| 9/16 | 1-1/2 | 3 | PB9S | 16.50 |
| 9/16 | 2-1/4 | 3-3/4 | PB9M | 16.73 |
| 9/16 | 3 | 4-1/2 | PB9L | 17.08 |

| 5/8" SHANK | | | | |
|------------|------------|----------------|----------|------------|
| Min. Bore | Bore Depth | Overall Length | Tool No. | Price Each |
| 5/16 | 3/4 | 2-1/4 | PC5S | 17.23 |
| 5/16 | 1-1/8 | 2-5/8 | PC5M | 17.77 |
| 5/16 | 1-1/2 | 3 | PC5L | 18.69 |
| 7/16 | 1-1/8 | 2-5/8 | PC7S | 19.38 |
| 7/16 | 1-11/16 | 3-3/16 | PC7M | 20.18 |
| 7/16 | 2-1/4 | 3-3/4 | PC7L | 21.45 |
| 9/16 | 1-1/2 | 3 | PC9S | 21.85 |
| 9/16 | 2-1/4 | 3-3/4 | PC9M | 22.71 |
| 9/16 | 3 | 4-1/2 | PC9L | 23.75 |
| 11/16 | 1-7/8 | 3-3/8 | PC11S | 24.50 |
| 11/16 | 2-13/16 | 4-5/16 | PC11M | 25.43 |
| 11/16 | 3-3/4 | 5-1/4 | PC11L | 26.91 |

| 3/4" SHANK | | | | |
|------------|------------|----------------|----------|------------|
| Min. Bore | Bore Depth | Overall Length | Tool No. | Price Each |
| 7/16 | 1-1/8 | 3-1/8 | PD7S | 20.18 |
| 7/16 | 1-11/16 | 3-11/16 | PD7M | 21.22 |
| 7/16 | 2-1/4 | 4-1/4 | PD7L | 22.14 |
| 9/16 | 1-1/2 | 3-1/2 | PD9S | 22.89 |
| 9/16 | 2-1/4 | 4-1/4 | PD9M | 23.52 |
| 9/16 | 3 | 5 | PD9L | 24.55 |
| 11/16 | 1-7/8 | 3-7/8 | PD11S | 25.24 |
| 11/16 | 2-13/16 | 4-13/16 | PD11M | 26.05 |
| 11/16 | 3-3/4 | 5-3/4 | PD11L | 27.03 |
| 13/16 | 2-1/4 | 4-1/4 | PD13S | 28.64 |
| 13/16 | 3-3/8 | 5-3/8 | PD13M | 30.30 |
| 13/16 | 4-1/2 | 6-1/2 | PD13L | 31.97 |



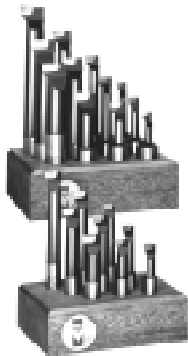
Please specify grade when ordering
C-2 Cast Iron
or
C-6 Steel.

| 1" SHANK | | | | |
|-----------|------------|----------------|----------|------------|
| Min. Bore | Bore Depth | Overall Length | Tool No. | Price Each |
| 7/16 | 1-3/4 | 3-3/4 | PE7S | 35.13 |
| 9/16 | 2-1/4 | 4-1/4 | PE9S | 37.66 |
| 9/16 | 3 | 5 | PE9L | 39.96 |
| 11/16 | 3 | 5 | PE11S | 39.96 |
| 11/16 | 3-3/4 | 5-3/4 | PE11L | 41.23 |
| 13/16 | 3-3/4 | 5-3/4 | PE13L | 41.23 |
| 7/8 | 4-1/2 | 6-1/2 | PE14L | 44.10 |
| 15/16 | 3-3/4 | 5-3/4 | PE15S | 45.89 |
| 1-1/16 | 4-1/2 | 6-1/2 | PE17L | 47.15 |
| 1-1/4 | 5-3/4 | 7-3/4 | PE20L | 50.60 |
| 1-1/2 | 6-1/4 | 8-1/4 | PE24L | 53.48 |
| 1-5/8 | 7-1/2 | 9-1/2 | PE26L | 57.44 |

3/8" SHANK

SET NO. PA375

9 Piece Set
Contains 1 Piece of Each:
3/8" Shank Boring
Bars Shown Above
SET PRICE — \$107.00



1/2" SHANK

SET NO. PB500

9 Piece Set
Contains 1 Piece of Each:
1/2" Shank Boring
Bars Shown Above
SET PRICE — \$137.00

SETS

ALL SETS ARE
SUPPLIED IN
WOOD STANDS

1" SHANK

SET NO. PE1000S

Standard Length
5 Piece Set
Contains 1 Piece
of Each:

1" Shank Boring Bars

PE7S, PE9S, PE11S, PE15S, PE17L
SET PRICE — \$205.00

SET NO. PE1000L

Long Length
5 Piece Set
Contains 1 Piece
of Each:

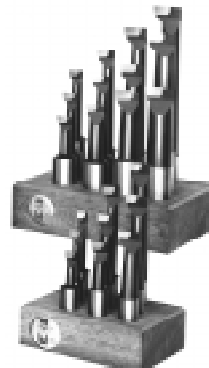
1" Shank Boring Bars

PE11L, PE17L, PE20L, PE24L, PE26L
SET PRICE — \$250.00

5/8" SHANK

SET NO. PC625

12 Piece Set
Contains 1 Piece of Each:
5/8" Shank Boring
Bars Shown Above
SET PRICE — \$259.00



3/4" SHANK

SET NO. PD750

12 Piece Set
Contains 1 Piece of Each:
3/4" Shank Boring
Bars Shown Above
SET PRICE — \$304.00

◆ INDEXABLE BORING BARS



Boring bars come complete with insert screw and one C-5 grade insert

| 1/2" SHANK | | | | |
|------------|------------|----------------|----------|------------|
| Min. Bore | Bore Depth | Overall Length | Tool No. | Price Each |
| 7/16 | 1-1/4 | 2-3/4 | NB7S | 28.99 |
| 7/16 | 1-7/8 | 3-3/8 | NB7M | 28.99 |
| 7/16 | 2-1/2 | 4 | NB7L | 28.99 |
| 1/2 | 1-1/2 | 3 | NB8S | 31.99 |
| 1/2 | 2-1/8 | 3-5/8 | NB8M | 31.99 |
| 1/2 | 2-3/4 | 4-1/4 | NB8L | 31.99 |
| 9/16 | 1-3/4 | 3-1/4 | NB9S | 33.99 |
| 9/16 | 2-3/8 | 3-7/8 | NB9M | 33.99 |
| 9/16 | 3 | 4-1/2 | NB9L | 33.99 |

| 5/8" SHANK | | | | |
|------------|------------|----------------|----------|------------|
| Min. Bore | Bore Depth | Overall Length | Tool No. | Price Each |
| 7/16 | 1-1/4 | 3 | NC7S | 31.99 |
| 7/16 | 1-7/8 | 3-5/8 | NC7M | 31.99 |
| 7/16 | 2-1/2 | 4-1/4 | NC7L | 31.99 |
| 1/2 | 1-1/2 | 3-1/4 | NC8S | 32.99 |
| 1/2 | 2-1/8 | 3-7/8 | NC8M | 32.99 |
| 1/2 | 2-3/4 | 4-1/2 | NC8L | 32.99 |
| 9/16 | 1-3/4 | 3-1/2 | NC9S | 34.99 |
| 9/16 | 2-3/8 | 4-1/8 | NC9M | 34.99 |
| 9/16 | 3 | 4-3/4 | NC9L | 34.99 |
| 5/8 | 2 | 3-3/4 | NC10S | 36.99 |
| 5/8 | 2-5/8 | 4-3/8 | NC10M | 36.99 |
| 5/8 | 3-1/4 | 5 | NC10L | 36.99 |
| 11/16 | 2-1/4 | 4 | NC11S | 38.99 |
| 11/16 | 2-7/8 | 4-5/8 | NC11M | 38.99 |
| 11/16 | 3-1/2 | 5-1/4 | NC11L | 38.99 |

| 3/4" SHANK | | | | |
|------------|------------|----------------|----------|------------|
| Min. Bore | Bore Depth | Overall Length | Tool No. | Price Each |
| 7/16 | 1-1/4 | 3-1/4 | ND7S | 34.99 |
| 7/16 | 1-7/8 | 3-7/8 | ND7M | 34.99 |
| 7/16 | 2-1/2 | 4-1/2 | ND7L | 34.99 |
| 1/2 | 1-1/2 | 3-1/2 | ND8S | 35.99 |
| 1/2 | 2-1/8 | 4-1/8 | ND8M | 35.99 |
| 1/2 | 2-3/4 | 4-3/4 | ND8L | 35.99 |
| 9/16 | 1-3/4 | 3-3/4 | ND9S | 37.99 |
| 9/16 | 2-3/8 | 4-3/8 | ND9M | 37.99 |
| 9/16 | 3 | 5 | ND9L | 37.99 |
| 5/8 | 2 | 4 | ND10S | 38.99 |
| 5/8 | 2-5/8 | 4-5/8 | ND10M | 38.99 |
| 5/8 | 3-1/4 | 5-1/4 | ND10L | 38.99 |
| 11/16 | 2-1/4 | 4-1/4 | ND11S | 39.99 |
| 11/16 | 2-7/8 | 4-7/8 | ND11M | 39.99 |
| 11/16 | 3-1/2 | 5-1/2 | ND11L | 39.99 |
| 3/4 | 2-1/2 | 4-1/2 | ND12S | 40.09 |
| 3/4 | 3-1/4 | 5-1/4 | ND12M | 40.09 |
| 3/4 | 4 | 6 | ND12L | 40.09 |
| 13/16 | 2-3/4 | 4-3/4 | ND13S | 41.99 |
| 13/16 | 4 | 6 | ND13M | 41.99 |
| 13/16 | 4-1/2 | 6-1/2 | ND13L | 41.99 |

| REPLACEMENT PARTS | | |
|-------------------|---|------------|
| Part No. | Description | Price Each |
| TF440-195 | Torx® drive flat head screw for 1/4" I.C. | 1.25 |
| CTW-6 | Torx® Wrench -T6 | 1.95 |

SETS

Sets come complete with wrench in a wood stand.



1/2" SHANK
SET NO. ND500
 9 Piece Set
 Contains 1 Piece of Each:
 7/16 to 9/16
SET PRICE — \$279.00



5/8" SHANK
SET NO. ND625
 12 Piece Set
 Contains 1 Piece of Each:
 1/2 to 11/16
SET PRICE — \$419.00



3/4" SHANK
SET NO. ND750
 12 Piece Set
 Contains 1 Piece of Each:
 5/8 to 13/16
SET PRICE — \$479.00

| Insert Number | Radius | I.C. | Thickness | Price Each | | |
|---------------|--------|------|-----------|------------|-----------|------------|
| | | | | C-2 | C-5 & C-6 | TiN Coated |
| TPGH-21.50 | 0 | 1/4 | 3/32 | 4.75 | 5.23 | 6.11 |
| TPGH-21.51 | 1/64 | 1/4 | 3/32 | 4.75 | 5.23 | 6.11 |
| TPGH-21.52 | 1/32 | 1/4 | 3/32 | 4.75 | 5.23 | 6.11 |



TPGH

TRIANGLE — POSITIVE RAKE
 GROUND ALL OVER WITH
 CHIP GROOVE ON ONE SIDE

CARBIDE INSERTS



MADE IN U.S.A. — EXCLUSIVELY BY A.P.T.

◆ CO-BORE

PREMIUM *COBALT* BORING BARS AT HIGH SPEED PRICES!



Made of premium cobalt high speed steel in a one piece construction, these boring bars may also be modified to a special grooving tool to produce various internal shapes and radii. Cobalt is an ideal tool material because of its high red-hardness, abrasive resistance and ability to maintain a sharp edge. In addition, cobalt is used successfully to significantly extend tool life.

| 3/8" SHANK | | | | |
|------------|------------|----------------|----------|------------|
| Min. Bore | Bore Depth | Overall Length | Tool No. | Price Each |
| 3/16 | 9/16 | 1-13/16 | COA3S | 13.12 |
| 3/16 | 15/16 | 2-3/16 | COA3L | 13.90 |
| 1/4 | 3/4 | 2 | COA4S | 14.35 |
| 1/4 | 1-1/4 | 2-1/2 | COA4L | 15.04 |
| 5/16 | 15/16 | 2-3/16 | COA5S | 15.24 |
| 5/16 | 1-9/16 | 2-13/16 | COA5L | 16.00 |
| 3/8 | 1-1/8 | 2-3/8 | COA6S | 16.35 |
| 3/8 | 1-7/8 | 3-1/8 | COA6L | 17.14 |



| SETS | | | | |
|---|--|--|--|--|
| 3/8" SHANK | | | | |
| SET NO. COAH375 | | | | |
| Includes all 8 pieces shown at left. Supplied in wood block. | | | | |
| SET PRICE — \$121.00 | | | | |
| 1/2" SHANK | | | | |
| SET NO. COBH500 | | | | |
| Includes all 10 pieces shown at right. Supplied in wood block. | | | | |
| SET PRICE — \$187.00 | | | | |
| 5/8" SHANK | | | | |
| SET NO. COCH625 | | | | |
| Includes all 10 pieces shown at left. Supplied in wood block. | | | | |
| SET PRICE — \$274.00 | | | | |
| 3/4" SHANK | | | | |
| SET NO. CODH750 | | | | |
| Includes all 14 pieces shown at right. Supplied in wood block. | | | | |
| SET PRICE — \$436.00 | | | | |

| 1/2" SHANK | | | | |
|------------|------------|----------------|----------|------------|
| Min. Bore | Bore Depth | Overall Length | Tool No. | Price Each |
| 1/4 | 3/4 | 2-1/8 | COB4S | 16.71 |
| 1/4 | 1-1/4 | 2-5/8 | COB4L | 17.14 |
| 5/16 | 15/16 | 2-5/16 | COB5S | 17.41 |
| 5/16 | 1-9/16 | 2-15/16 | COB5L | 18.19 |
| 3/8 | 1-1/8 | 2-1/2 | COB6S | 18.47 |
| 3/8 | 1-7/8 | 3-1/4 | COB6L | 19.17 |
| 7/16 | 1-5/16 | 2-11/16 | COB7S | 19.17 |
| 7/16 | 2-3/16 | 3-9/16 | COB7L | 19.67 |
| 1/2 | 1-1/2 | 2-7/8 | COB8S | 20.63 |
| 1/2 | 2-1/2 | 3-7/8 | COB8L | 21.09 |

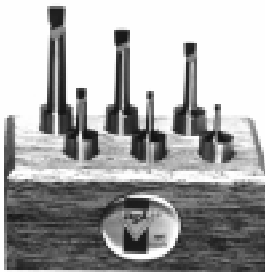
| 5/8" SHANK | | | | |
|------------|------------|----------------|----------|------------|
| Min. Bore | Bore Depth | Overall Length | Tool No. | Price Each |
| 3/8 | 1-1/8 | 2-5/8 | COC6S | 21.85 |
| 3/8 | 1-7/8 | 3-3/8 | COC6L | 22.34 |
| 7/16 | 1-5/16 | 2-13/16 | COC7S | 23.51 |
| 7/16 | 2-13/16 | 3-11/16 | COC7L | 25.45 |
| 1/2 | 1-1/2 | 3 | COC8S | 26.12 |
| 1/2 | 2-1/2 | 4 | COC8L | 27.91 |
| 9/16 | 1-11/16 | 3-3/16 | COC9S | 29.80 |
| 9/16 | 2-13/16 | 4-5/16 | COC9L | 31.12 |
| 5/8 | 1-7/8 | 3-3/8 | COC10S | 32.65 |
| 5/8 | 3-1/8 | 4-5/8 | COC10L | 33.95 |

| 3/4" SHANK | | | | |
|------------|------------|----------------|----------|------------|
| Min. Bore | Bore Depth | Overall Length | Tool No. | Price Each |
| 3/8 | 1-1/8 | 2-7/8 | COD6S | 25.61 |
| 3/8 | 1-7/8 | 3-5/8 | COD6L | 26.52 |
| 7/16 | 1-5/16 | 3-1/16 | COD7S | 27.20 |
| 7/16 | 2-3/16 | 3-15/16 | COD7L | 28.45 |
| 1/2 | 1-1/2 | 3-1/4 | COD8S | 29.29 |
| 1/2 | 2-1/2 | 4-1/4 | COD8L | 30.06 |
| 9/16 | 1-11/16 | 3-7/16 | COD9S | 30.64 |
| 9/16 | 2-13/16 | 4-9/16 | COD9L | 31.81 |
| 5/8 | 1-7/8 | 3-5/8 | COD10S | 32.48 |
| 5/8 | 3-1/8 | 4-7/8 | COD10L | 33.48 |
| 11/16 | 2-1/16 | 3-13/16 | COD11S | 34.22 |
| 11/16 | 3-7/16 | 5-3/16 | COD11L | 35.66 |
| 3/4 | 2-1/4 | 4 | COD12S | 36.23 |
| 3/4 | 3-3/4 | 5-1/2 | COD12L | 37.25 |

MADE IN U.S.A.

◆ MINI-BORE

SOLID CARBIDE STEMS — STEEL SHANKS



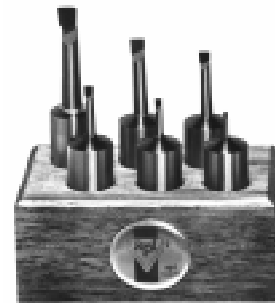
3/8" SHANK SET NO. MA375

6 Piece Set
Includes 1 Piece of Each:
MA1, MA2, MA3, MA4, MA5, MA6
Supplied in Wood Block.

SET PRICE — \$209.00



| SINGLE TOOL | | | | |
|-------------|------------|----------------|----------|------------|
| Min. Bore | Bore Depth | Overall Length | Tool No. | Price Each |
| 3/8" SHANK | | | | |
| 1/16 | 5/16 | 1-9/16 | MA1 | 26.20 |
| 3/32 | 15/32 | 1-23/32 | MA2 | 27.05 |
| 1/8 | 5/8 | 1-7/8 | MA3 | 29.62 |
| 5/32 | 25/32 | 2-1/32 | MA4 | 36.72 |
| 3/16 | 15/16 | 2-3/16 | MA5 | 41.65 |
| 1/4 | 1-1/4 | 2-1/2 | MA6 | 47.91 |
| 1/2" SHANK | | | | |
| 1/16 | 5/16 | 1-13/16 | MB1 | 28.51 |
| 3/32 | 15/32 | 1-15/16 | MB2 | 29.47 |
| 1/8 | 5/8 | 2-1/8 | MB3 | 31.91 |
| 5/32 | 25/32 | 2-1/4 | MB4 | 39.10 |
| 3/16 | 15/16 | 2-7/16 | MB5 | 43.96 |
| 1/4 | 1-1/4 | 2-13/16 | MB6 | 50.23 |



1/2" SHANK SET NO. MB500

6 Piece Set
Includes 1 Piece of Each:
MB1, MB2, MB3, MB4, MB5, MB6
Supplied in Wood Block.

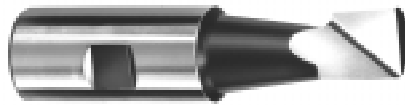
SET PRICE — \$223.00



STUBBY BORING BARS

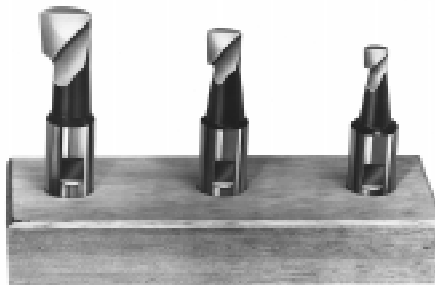
HIGH SPEED AND CARBIDE TIPPED

- MAXIMUM RIGIDITY
- PRECISION GROUND SHANKS
- SHANKS FEATURE SET SCREW FLATS



| HIGH SPEED STEEL | | | | |
|-------------------|------------|----------------|----------|------------|
| Min. Bore | Bore Depth | Overall Length | Tool No. | Price Each |
| 1/2" SHANK | | | | |
| 1/8 | 1/4 | 1-21/32 | PSBH2 | 19.50 |
| 3/16 | 5/16 | 1-13/16 | PSBH3 | 19.50 |
| 1/4 | 7/16 | 2 | PSBH4 | 19.50 |
| 5/16 | 9/16 | 2-3/16 | PSBH5 | 19.50 |
| 3/8 | 11/16 | 2-3/8 | PSBH6 | 20.65 |
| 1/2 | 13/16 | 2-9/16 | PSBH8 | 21.35 |
| 5/8" SHANK | | | | |
| 3/8 | 11/16 | 2-5/16 | PSCH6 | 29.50 |
| 1/2 | 15/16 | 2-9/16 | PSCH8 | 29.50 |
| 5/8 | 1-1/8 | 2-3/4 | PSCH10 | 29.50 |
| 3/4" SHANK | | | | |
| 1/2 | 1-5/16 | 2-15/16 | PSDH8 | 49.80 |
| 3/4 | 1-17/32 | 3-5/32 | PSDH12 | 52.50 |
| 1 | 1-3/4 | 3-3/8 | PSDH16 | 57.60 |
| 1" SHANK | | | | |
| 3/4 | 1-17/32 | 3-5/32 | PSEH12 | 54.00 |
| 1 | 1-3/4 | 3-3/8 | PSEH16 | 57.50 |
| 1-1/4 | 1-31/32 | 3-19/32 | PSEH20 | 69.75 |

| CARBIDE TIPPED | | | | |
|-------------------|------------|----------------|----------|------------|
| Min. Bore | Bore Depth | Overall Length | Tool No. | Price Each |
| 1/2" SHANK | | | | |
| 1/8 | 1/4 | 1-21/32 | PSBC2 | 27.50 |
| 3/16 | 5/16 | 1-13/16 | PSBC3 | 27.50 |
| 1/4 | 7/16 | 2 | PSBC4 | 27.50 |
| 5/16 | 9/16 | 2-3/16 | PSBC5 | 27.50 |
| 3/8 | 11/16 | 2-3/8 | PSBC6 | 27.50 |
| 1/2 | 13/16 | 2-9/16 | PSBC8 | 27.50 |
| 5/8" SHANK | | | | |
| 3/8 | 11/16 | 2-15/16 | PSCC6 | 32.72 |
| 1/2 | 15/16 | 2-9/16 | PSCC8 | 32.72 |
| 5/8 | 1-1/8 | 2-3/4 | PSCC10 | 32.72 |
| 3/4" SHANK | | | | |
| 1/2 | 1-5/16 | 2-15/16 | PSDC8 | 32.00 |
| 3/4 | 1-17/32 | 3-5/32 | PSDC12 | 32.00 |
| 1 | 1-3/4 | 3-3/8 | PSDC16 | 34.50 |
| 1" SHANK | | | | |
| 3/4 | 1-17/32 | 3-5/32 | PSEC12 | 34.50 |
| 1 | 1-3/4 | 3-3/8 | PSEC16 | 34.50 |
| 1-1/4 | 1-31/32 | 3-19/32 | PSEC20 | 42.50 |



| HIGH SPEED STEEL SETS | |
|--|--|
| 1/2" SHANK | 5/8" SHANK |
| <p>SET NO. PSBH500 6 Piece Set Contains 1 piece of each: 1/8, 3/16, 1/4, 5/16, 3/8, 1/2 Supplied in wood block. SET PRICE — \$120.00</p> | <p>SET NO. PSCH625 3 Piece Set Contains 1 piece of each: 3/8, 1/2 and 5/8 Supplied in wood block. SET PRICE — \$88.50</p> |
| 3/4" SHANK | 1" SHANK |
| <p>SET NO. PSDH750 3 Piece Set Contains 1 piece of each: 1/2, 3/4 and 1" Supplied in wood block. SET PRICE — \$159.00</p> | <p>SET NO. PSEH1000 3 Piece Set Contains 1 piece of each: 3/4, 1" and 1-1/4 Supplied in wood block. SET PRICE — \$179.00</p> |

| CARBIDE TIPPED SETS | |
|--|--|
| 1/2" SHANK | 5/8" SHANK |
| <p>SET NO. PSBC500 6 Piece Set Contains 1 piece of each: 1/8, 3/16, 1/4, 5/16, 3/8, 1/2 Supplied in wood block. SET PRICE — \$159.00</p> | <p>SET NO. PSCC625 3 Piece Set Contains 1 piece of each: 3/8, 1/2 and 5/8 Supplied in wood block. SET PRICE — \$98.00</p> |
| 3/4" SHANK | 1" SHANK |
| <p>SET NO. PSDC750 3 Piece Set Contains 1 piece of each: 1/2, 3/4 and 1" Supplied in wood block. SET PRICE — \$98.00</p> | <p>SET NO. PSEC1000 3 Piece Set Contains 1 piece of each: 3/4, 1" and 1-1/4 Supplied in wood block. SET PRICE — \$110.00</p> |



MADE IN U.S.A.

◆ PRECISION BORING HEADS WITH INTEGRATED SHANKS



- Direct reading .001 micrometer dial
- Precision hardened steel
- Boring capacity up to 4"

| STRAIGHT SHANKS | | | | | | | | |
|-----------------|------------|-----------|---------------|--------------------|--------------|----------------|----------|------------|
| Head Dia. | Shank Dia. | Hole Dia. | Offset Travel | Vert. Hole Spacing | Shank Length | Overall Length | Tool No. | Price Each |
| 2 | 3/4 | 3/8 | 3/4 | 5/8 | 2-5/8 | 5-1/16 | BH34A | 114.00 |
| 2-1/2 | 3/4 | 1/2 | 3/4 | 3/4 | 2-5/8 | 5-13/16 | BH34B | 137.00 |
| 2-1/2 | 3/4 | 5/8 | 3/4 | 3/4 | 2-5/8 | 5-13/16 | BH34C | 148.00 |
| 3 | 1 | 3/4 | 1-1/4 | 15/16 | 2-5/8 | 6-1/8 | BH1D | 170.00 |

| R-8 SHANKS | | | | | | | | |
|------------|------------|-----------|---------------|--------------------|--------------|----------------|----------|------------|
| Head Dia. | Shank Dia. | Hole Dia. | Offset Travel | Vert. Hole Spacing | Shank Length | Overall Length | Tool No. | Price Each |
| 2 | R-8 | 3/8 | 3/4 | 5/8 | 4 | 6-7/16 | BHR8A | 171.00 |
| 2-1/2 | R-8 | 1/2 | 3/4 | 3/4 | 4 | 7-3/16 | BHR8B | 183.00 |
| 2-1/2 | R-8 | 5/8 | 3/4 | 3/4 | 4 | 7-3/16 | BHR8C | 201.00 |
| 3 | R-8 | 3/4 | 1-1/4 | 15/16 | 4 | 7-1/2 | BHR8D | 228.00 |

SETS

SET NO. BH34BS

10 Piece Set

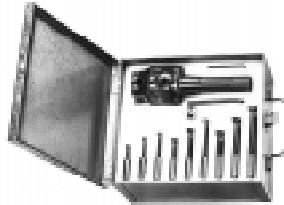
Contains 1 Piece of Each:

BH34B 3/4 Shank Boring Head and (1) PB500 1/2" Shank Carbide

Tipped Boring Bar Set. Contains the following sizes in standard, medium, and long lengths: 5/16, 7/16, and 9/16.

Supplied in Special Case.

SET PRICE — \$269.00



SET NO. BHR8BS

10 Piece Set

Contains 1 Piece of Each:

BHR8B R-8 Shank Boring Head and (1) PB500 1/2" Shank Carbide

Tipped Boring Bar Set. Contains the following sizes in standard, medium, and long lengths: 5/16, 7/16, and 9/16.

Supplied in Special Case.

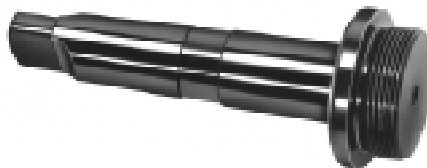
SET PRICE — \$325.00



◆ BORING HEADS WITH INTERCHANGEABLE SHANKS

| BORING HEADS | | | | | | | |
|--------------|---------------|-----------|----------------|---------------|--------------------|----------|------------|
| Head Dia. | Threaded Back | Hole Dia. | Overall Length | Offset Travel | Vert. Hole Spacing | Tool No. | Price Each |
| 2 | 7/8 — 20 | 3/8 | 2-7/16 | 3/4 | 5/8 | BHTA | 148.00 |
| 2-1/2 | 7/8 — 20 | 1/2 | 3-3/16 | 3/4 | 3/4 | BHTB | 160.00 |
| 2-1/2 | 7/8 — 20 | 5/8 | 3-3/16 | 3/4 | 3/4 | BHTC | 178.00 |
| 3 | 1-1/2 — 18 | 3/4 | 3-1/2 | 1-1/4 | 5/16 | BHTD | 206.00 |

◆ INTERCHANGEABLE SHANKS FOR BORING HEADS



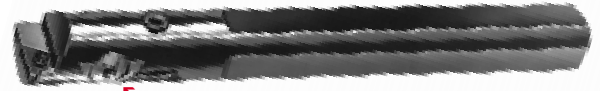
| 7/8 — 20 THREAD | | |
|---------------------------------------|----------|------------|
| Description | Tool No. | Price Each |
| 2 M.T. with Tang | BHQM2 | 38.60 |
| 3 M.T. with Tang | BHQM3 | 43.20 |
| 4 M.T. with Tang | BHQM4 | 51.00 |
| #30 N.T. with Draw Bar & Drive Flange | BHQS3 | 89.00 |
| #40 N.T. with Draw Bar & Drive Flange | BHQS4 | 110.30 |
| 1/2" Diameter Straight Shank | BHQ16 | 22.10 |
| 3/4" Diameter Straight Shank | BHQ24 | 22.10 |
| 1" Diameter Straight Shank | BHQ32 | 22.10 |
| R-8 Shank | BHQR8 | 47.70 |

| 1-1/2 — 18 THREAD | | |
|---------------------------------------|----------|------------|
| Description | Tool No. | Price Each |
| 3 M.T. with Tang | BHXM3 | 54.10 |
| 4 M.T. with Tang | BHXM4 | 61.00 |
| #30 N.T. with Draw Bar & Drive Flange | BHXS3 | 100.00 |
| #40 N.T. with Draw Bar & Drive Flange | BHXS4 | 130.90 |
| 1" Diameter Straight Shank | BHX32 | 31.60 |
| 1-1/4" Diameter Straight Shank | BHX40 | 44.80 |
| 1-1/2" Diameter Straight Shank | BHX48 | 44.80 |
| R-8 Shank | BHXR8 | 55.30 |



◆ MICRO-RANGE™ ADJUSTABLE BORING BAR

- For use on CNC and conventional mills and lathes
- Can be precision adjusted while tool is in machine
- .002 graduation adjustment
- C5/C6 carbide insert and torx® wrench included with each tool



↖ Micrometer adjustment screw

| | | TPGH TRIANGLE — POSITIVE RAKE GROUND ALL OVER WITH CHIP GROOVE ON ONE SIDE | | | | |
|-----------------|--------|---|-----------|------------|-----------|-------------|
| CARBIDE INSERTS | | | | | | |
| Insert Number | Radius | I.C. | Thickness | Price Each | | |
| | | | | C-2 | C-5 & C-6 | TiN* Coated |
| TPGH-21.50 | 0 | 1/4 | 3/32 | 4.75 | 5.23 | 6.11 |
| TPGH-21.51 | 1/64 | 1/4 | 3/32 | 4.75 | 5.23 | 6.11 |
| TPGH-21.52 | 1/32 | 1/4 | 3/32 | 4.75 | 5.23 | 6.11 |
| TPGH-321 | 1/64 | 3/8 | 1/8 | 5.13 | 5.70 | 6.95 |
| TPGH-322 | 1/32 | 3/8 | 1/8 | 5.13 | 5.70 | 6.95 |

*C-5 & C-6 Grade TiN Coated

| REPLACEMENT PARTS | | |
|-------------------|---|------------|
| Part No. | Description | Price Each |
| TF832-285 | Torx® drive flat head screw for 3/8" I.C. | 1.75 |
| TF440-195 | Torx® drive flat head screw for 1/4" I.C. | 1.25 |
| CTW-10 | Torx® wrench for 3/8" I.C. | 2.45 |
| CTW-6 | Torx® wrench for 1/4" I.C. | 1.95 |

| HOLDERS | | | | | | | |
|------------|------------|---------------------|----------------|-------------------|------------------|-----------|------------|
| Min.* Bore | Max.* Bore | Shank Dia. or Style | Overall Length | Max. Depth of Cut | Insert Size I.C. | Tool No. | Price Each |
| 3/4 | 15/16 | 5/8 | 5-1/4 | 3-1/8 | 1/4 | TLA625S | 187.75 |
| 3/4 | 15/16 | R-8 | 7-3/8 | 3-1/8 | 1/4 | TLA625R8 | 222.75 |
| 15/16 | 1-3/16 | 3/4 | 6-5/16 | 4-1/8 | 3/8 | TLA750S | 214.75 |
| 15/16 | 1-3/16 | R-8 | 8-3/8 | 4-1/8 | 3/8 | TLA750R8 | 256.75 |
| 1-3/16 | 1-5/8 | 1" | 8-1/4 | 5-1/8 | 3/8 | TLA1000S | 245.75 |
| 1-3/16 | 1-5/8 | R-8 | 9-3/8 | 5-1/8 | 3/8 | TLA1000R8 | 297.75 |
| 1-7/16 | 2-3/8 | 1-1/4 | 10-5/16 | 6-1/4 | 3/8 | TLA1250S | 282.75 |
| 1-7/16 | 2-3/8 | R-8 | 10-1/2 | 6-1/4 | 3/8 | TLA1250R8 | 335.75 |

*NOTE: Bore diameter produced when using insert TPGH-21.51 (radius 1/64).

| REPLACEMENT PARTS | | |
|-------------------|---|------------|
| Part No. | Description | Price Each |
| MSTLA625 | Micro-range screw for use with 5/8 dia. holder | 8.50 |
| MSTLA750 | Micro-range screw for use with 3/4 dia. holder | 9.00 |
| MSTLA1000 | Micro-range screw for use with 1" dia. holder | 10.00 |
| MSTLA1250 | Micro-range screw for use with 1-1/4" dia. holder | 10.50 |

◆ CARBIDE INDEXABLE SOCKET HEAD CAP SCREW COUNTERBORES

- Significant increase in cutting speeds over high speed steel
- No regrinding
- One carbide insert fits all size holders
- Outlasts high speed on abrasive materials
- No clamps to impede chip flow
- C5/C6 carbide insert and torx® wrench included with each tool.



| | | TPGH TRIANGLE — POSITIVE RAKE GROUND ALL OVER WITH CHIP GROOVE ON ONE SIDE | | | | |
|-----------------|--------|---|-----------|------------|-----------|-------------|
| CARBIDE INSERTS | | | | | | |
| Insert Number | Radius | I.C. | Thickness | Price Each | | |
| | | | | C-2 | C-5 & C-6 | TiN* Coated |
| TPGH-21.50 | 0 | 1/4 | 3/32 | 4.75 | 5.23 | 6.11 |
| TPGH-21.51 | 1/64 | 1/4 | 3/32 | 4.75 | 5.23 | 6.11 |
| TPGH-21.52 | 1/32 | 1/4 | 3/32 | 4.75 | 5.23 | 6.11 |

*C-5 & C-6 Grade TiN Coated

| REPLACEMENT PARTS | | |
|-------------------|--|------------|
| Part No. | Description | Price Each |
| TF440-195 | Torx® drive flat head screw for insert | 1.25 |
| CTW-6 | Torx® wrench | 1.95 |

| HOLDERS | | | | | | | |
|----------------|------------|------------|------------|----------------|---------------|----------|------------|
| Cap Screw Size | Pilot Dia. | Outer Dia. | Shank Dia. | Overall Length | No. of Flutes | Tool No. | Price Each |
| 3/8 | 13/32 | 19/32 | 1/2 | 4-3/8 | 1 | CB375 | 59.35 |
| 7/16 | 15/32 | 11/16 | 1/2 | 4-7/16 | 1 | CB437 | 62.30 |
| 1/2 | 17/32 | 25/32 | 5/8 | 4-1/2 | 1 | CB500 | 69.65 |
| 5/8 | 21/32 | 31/32 | 5/8 | 4-5/8 | 2 | CB625 | 94.75 |
| 3/4 | 13/16 | 1-3/16 | 3/4 | 4-3/4 | 3 | CB750 | 117.25 |
| 7/8 | 15/16 | 1-3/8 | 3/4 | 4-7/8 | 3 | CB875 | 144.75 |
| 1 | 1-1/16 | 1-9/16 | 3/4 | 5 | 3 | CB1000 | 157.35 |

SETS

SET NO. CBS2

3 Piece Set
Contains 1 Piece of Each:
3/4, 7/8, and 1"
Torx® wrench
Supplied in wood block.
SET PRICE — \$399.00



SET NO. CBS1

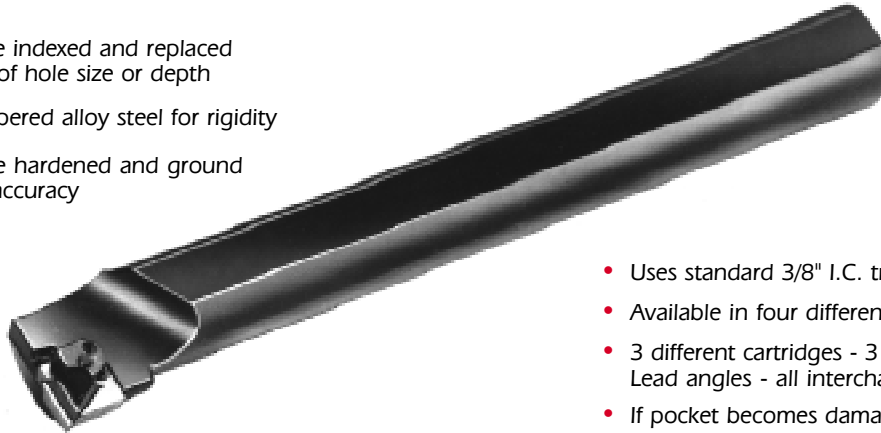
4 Piece Set
Contains 1 Piece of Each:
3/8, 7/16, 1/2, and 5/8
Torx® wrench
Supplied in wood block.
SET PRICE — \$259.00



MADE IN U.S.A.— EXCLUSIVELY BY A.P.T.

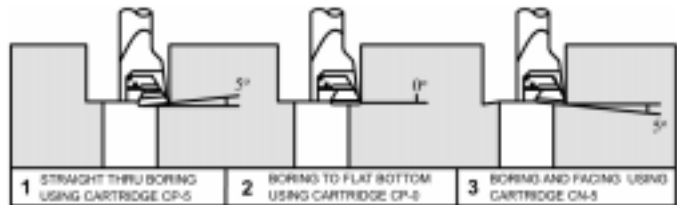
◆ TRI-LEAD INDEXABLE BORING BARS

- Inserts can be indexed and replaced without loss of hole size or depth
- Made of tempered alloy steel for rigidity
- Cartridges are hardened and ground to precision accuracy



- Uses standard 3/8" I.C. triangle inserts
- Available in four different shank sizes
- 3 different cartridges - 3 different Lead angles - all interchangeable
- If pocket becomes damaged during use simply replace the cartridge

| HOLDERS | | | | | |
|---------------------|-----------------------|-----------------------|----------------|----------|------------|
| Minimum Bore | Distance Across Flats | Center to Sharp Point | Overall Length | Tool No. | Price Each |
| 3/4" SHANK | | | | | |
| 1-1/16 | 11/16 | 11/16 | 4 | TL344 | 72.60 |
| 1-1/16 | 11/16 | 11/16 | 5-1/2 | TL345 | 80.00 |
| 1-1/16 | 11/16 | 11/16 | 7 | TL346 | 87.00 |
| 1-1/16 | 11/16 | 11/16 | 10 | TL347 | 101.50 |
| 1" SHANK | | | | | |
| 1-1/4 | 7/8 | 3/4 | 4 | TL105 | 91.90 |
| 1-1/4 | 7/8 | 3/4 | 7 | TL106 | 99.00 |
| 1-1/4 | 7/8 | 3/4 | 9 | TL107 | 106.50 |
| 1-1/4 | 7/8 | 3/4 | 12 | TL108 | 122.65 |
| 1-1/4" SHANK | | | | | |
| 1-1/2 | 1-1/8 | 13/16 | 6-1/2 | TL125 | 110.85 |
| 1-1/2 | 1-1/8 | 13/16 | 9 | TL126 | 123.00 |
| 1-1/2 | 1-1/8 | 13/16 | 11-1/2 | TL127 | 135.15 |
| 1-1/2 | 1-1/8 | 13/16 | 15 | TL128 | 154.60 |
| 1-1/2" SHANK | | | | | |
| 1-3/4 | 1-1/4 | 1 | 15 | TL138 | 194.35 |



All bars complete with CPO Cartridge (0° no lead) and TPG321 C5/C6 insert.

INTERCHANGEABLE CARTRIDGES
CP5 +5° Positive Lead Cartridge **8.70**
CN5 -5° Negative Lead Cartridge **8.70**

CARTRIDGE AND INSERT PACKAGE:

- 10 TPG321 C5/C6 Carbide Inserts
- 1 CP5 Cartridge (+5° Positive lead)
- 1 CN5 Cartridge (-5° Negative lead)

Part No. TLPK – \$59.00

Each tool is supplied with (1) TPG-321 C5/C6 insert.



TPG TRIANGLE — Positive rake — Ground all over

CARBIDE INSERTS

| Insert Number | Radius | I.C. | Thickness | Price Each | | |
|---------------|--------|------|-----------|------------|-----------|-------------|
| | | | | C-2 | C-5 & C-6 | TiN Coated* |
| TPG-320 | 0 | 3/8 | 1/8 | 4.89 | 5.18 | 6.21 |
| TPG-321 | 1/64 | 3/8 | 1/8 | 4.89 | 5.18 | 6.21 |
| TPG-322 | 1/32 | 3/8 | 1/8 | 4.89 | 5.18 | 6.21 |
| TPG-323 | 3/64 | 3/8 | 1/8 | 4.89 | 5.18 | 6.21 |
| TPG-324 | 1/16 | 3/8 | 1/8 | 4.89 | 5.18 | 6.21 |

*C-5 & C-6 Grade TiN Coated

REPLACEMENT PARTS LIST

| Part No. | Description | Price Each |
|----------|--|------------|
| CTL | Hold Down Clamp | 5.55 |
| CBT-12 | 3/8" I.C. Chipbreaker | 3.19 |
| SHIM41 | 3/8" I.C. Shim | 3.75 |
| CP0 | 0° Lead Cartridge | 8.70 |
| CP5 | +5° Positive Lead Cartridge | 8.70 |
| CN5 | -5° Negative Lead Cartridge | 8.70 |
| CRP-1 | Roll Pin | .35 |
| CF440-14 | Shim Screw | .35 |
| CS540-38 | Cartridge Screw (2 Required) | .35 |
| CS832-58 | Clamp Screw for 3/4" Shanks | .35 |
| CS832-34 | Clamp Screw for 1", 1-1/4" and 1-1/2" Shanks | .35 |

SETS

| 3/4" SHANK | 1" SHANK | 1-1/4" SHANK | 3/4", 1" and 1-1/4" SHANK |
|---|---|--|---|
| SET NO. TL348 Contains 1 piece of Each: TL344, TL345, TL346 3 Piece Set SET PRICE— \$235.00 | SET NO. TL109 Contains 1 piece of Each: TL105, TL106, TL107 3 Piece Set SET PRICE— \$295.00 | SET NO. TL129 Contains 1 piece of Each: TL125, TL126, TL127 3 Piece Set SET PRICE - \$365.00 | SET NO. TL130 Contains 1 piece of Each: TL345, TL106, TL126 3 Piece Set SET PRICE— \$299.00 |

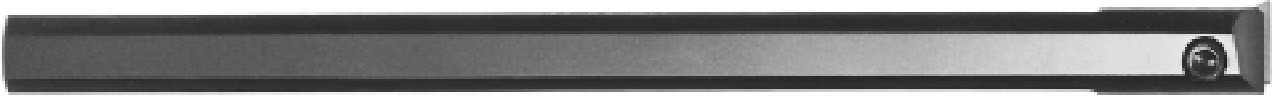
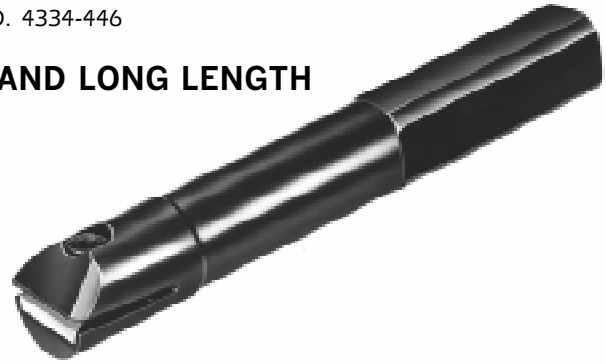
◆ SUPER-LOK BORING BARS

PATENT NO. 4334-446



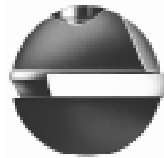
REGULAR LENGTH AND LONG LENGTH

- No special components
- The only replacement part is a cap screw
- Insert is held rigidly by a unique clamping design
- Uses standard 1/4" and 3/8" I.C. triangle inserts
- Chose from a wide variety of shank sizes and lengths



Each tool is supplied with (1) TPG C-6 insert.

| SETS | |
|--|--|
| 1/2" SHANK | |
| SET NO. LB500 | |
| Includes all 6 Pieces, regular length shown C-6 Carbide inserts included Supplied in wood block SET PRICE – \$265.00 | |
| 5/8" SHANK | |
| SET NO. LC625 | |
| Includes all 6 Pieces, regular length shown C-6 Carbide inserts included Supplied in wood block SET PRICE – \$306.00 | |
| 3/4" SHANK | |
| SET NO. LD750 | |
| Includes all 8 Pieces, regular length shown C-6 Carbide inserts included Supplied in wood block SET PRICE – \$464.00 | |
| 1" SHANK | |
| SET NO. LE1000 | |
| Includes all 9 Pieces shown C-6 Carbide inserts included Supplied in wood block SET PRICE – \$692.00 | |



END VIEW



| HOLDERS | | | | | | |
|---------------------|------------|-----------------------|----------------|-------------------|----------|------------|
| Minimum Bore | Bore Depth | Distance Across Flats | Overall Length | Inserts Size I.C. | Tool No. | Price Each |
| 1/2" SHANK | | | | | | |
| 1/2 | 1-1/2 | 7/16 | 3 | 1/4 | LB8S | 41.40 |
| 1/2 | 2-1/4 | 7/16 | 3-3/4 | 1/4 | LB8M | 42.60 |
| 9/16 | 1-3/4 | 7/16 | 3-1/4 | 1/4 | LB9S | 41.40 |
| 9/16 | 2-5/8 | 7/16 | 4-1/8 | 1/4 | LB9M | 44.70 |
| 9/16** | – | 7/16 | 8 | 1/4 | LB9L | 52.00 |
| 5/8 | 2 | 7/16 | 3-1/2 | 1/4 | LB10S | 42.60 |
| 5/8 | 3 | 7/16 | 4-1/2 | 1/4 | LB10M | 44.70 |
| 5/8" SHANK | | | | | | |
| 1/2 | 1-1/2 | 9/16 | 3-1/4 | 1/4 | LC8S | 47.20 |
| 1/2 | 2-1/4 | 9/16 | 4 | 1/4 | LC8M | 48.90 |
| 5/8 | 2 | 9/16 | 3-3/4 | 1/4 | LC10S | 47.20 |
| 5/8 | 3 | 9/16 | 4-3/4 | 1/4 | LC10M | 50.30 |
| 11/16** | – | 9/16 | 9 | 3/8 | LC11L | 62.80 |
| 3/4 | 2-3/4 | 9/16 | 4-1/2 | 3/8 | LC12S | 50.30 |
| 3/4 | 3-3/4 | 9/16 | 5-1/2 | 3/8 | LC12M | 53.80 |
| 3/4" SHANK | | | | | | |
| 1/2 | 1-1/2 | 5/8 | 3-1/2 | 1/4 | LD8S | 53.80 |
| 1/2 | 2-1/4 | 5/8 | 4-1/4 | 1/4 | LD8M | 53.80 |
| 5/8 | 2 | 5/8 | 4 | 1/4 | LD10S | 53.80 |
| 5/8 | 3 | 5/8 | 5 | 1/4 | LD10M | 57.30 |
| 3/4 | 2-3/4 | 5/8 | 4-3/4 | 3/8 | LD12S | 57.30 |
| 3/4 | 3-3/4 | 5/8 | 5-3/4 | 3/8 | LD12M | 59.10 |
| 13/16 | 3 | 5/8 | 5 | 3/8 | LD13S | 59.10 |
| 13/16 | 4-1/2 | 5/8 | 6-1/2 | 3/8 | LD13M | 61.60 |
| 13/16** | – | 5/8 | 10 | 3/8 | LD13L | 71.60 |
| 1" SHANK | | | | | | |
| 3/4 | 3 | 7/8 | 5-1/4 | 3/8 | LE12S | 65.80 |
| 3/4 | 4 | 7/8 | 6-1/4 | 3/8 | LE12M | 72.40 |
| 13/16 | 3-1/4 | 7/8 | 5-1/2 | 3/8 | LE13S | 69.00 |
| 13/16 | 4-1/2 | 7/8 | 6-3/4 | 3/8 | LE13M | 76.00 |
| 15/16 | 3-1/2 | 7/8 | 5-3/4 | 3/8 | LE15S | 72.50 |
| 15/16 | 4-3/4 | 7/8 | 7 | 3/8 | LE15M | 79.80 |
| 1-1/16 | 4 | 7/8 | 6-1/4 | 3/8 | LE17S | 76.20 |
| 1-1/16 | 5-1/4 | 7/8 | 7-1/2 | 3/8 | LE17M | 83.70 |
| 1-1/16** | – | 7/8 | 12 | 3/8 | LE17L | 88.60 |
| 1-1/4" SHANK | | | | | | |
| 1-5/16** | – | 1-1/8 | 15 | 3/8 | LF21L | 111.70 |
| 1-1/2" SHANK | | | | | | |
| 1-9/16** | – | 1-1/4 | 15 | 3/8 | LG25L | 140.40 |

| Insert Number | Radius | I.C. | Thickness | Price Each | | |
|---------------|--------|------|-----------|------------|-----------|-------------|
| | | | | C-2 | C-5 & C-6 | TiN Coated* |
| TPG-221 | 1/64 | 1/4 | 1/8 | 4.14 | 4.37 | 5.30 |
| TPG-321 | 1/64 | 3/8 | 1/8 | 4.89 | 5.18 | 6.21 |

*C-5 & C-6 Grade TiN Coated

| REPLACEMENT PARTS LIST | | |
|------------------------|-----------------------------|------------|
| Part No. | Description | Price Each |
| CS632-38 | Screw for 1/4" I.C. Holders | .40 |
| CS1032-12 | Screw for 3/8" I.C. Holders | .50 |
| CS1032-38 | Screw for LC11L Only | .50 |
| CS1032-58 | Screw for LE15S, LE15M | .50 |
| CS1420-58 | Screw for LE17L Only | .40 |
| CS1420-34 | Screw for LF21L, LG25L | .40 |

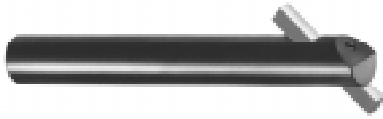
** Indicates Long Length



MADE IN U.S.A. — EXCLUSIVELY BY A.P.T.

◆ EASY-BORE BORING BARS

- Precision broached holes accept standard tool bits
- Use in any typical boring operation
- Made of stress resistant steel to minimize or eliminate vibration
- Easily reworked to accept adjustable boring tips for high precision boring



| SINGLE END - 45° STYLE | | | | |
|------------------------|----------------|-------------------|-------------|------------|
| Dia. of Bar | Overall Length | Tool Bit Diameter | Tool Number | Price Each |
| 1/4 | 2-1/2 | 5/32 round | BA1 | 7.60 |
| 5/16 | 2-1/2 | 3/16 round | BA2 | 8.65 |
| 3/8 | 3 | 3/16 round | BA3 | 9.30 |
| 1/2 | 3 | 3/16 square | BA4 | 12.35 |
| 9/16 | 4-1/2 | 3/16 square | BA5 | 14.00 |
| 5/8 | 5 | 1/4 square | BA6 | 14.50 |
| 3/4 | 6 | 1/4 square | BA7 | 16.70 |
| 1 | 6 | 5/16 square | BA9 | 21.00 |
| 1 | 6 | 3/8 square | BA9X | 21.00 |
| 1-1/4 | 8 | 1/2 square | BA11 | 34.20 |
| 1-1/2 | 9 | 1/2 square | BA15 | 45.60 |

Prices do not include tool bits. Replacement screws available. Please inquire.

| DOUBLE END - 45° AND 90° STYLES | | | | |
|---------------------------------|----------------|-------------------|-------------|------------|
| Dia. of Bar | Overall Length | Tool Bit Diameter | Tool Number | Price Each |
| 1/4 | 5 | 5/32 round | BD1 | 12.65 |
| 5/16 | 5 | 3/16 round | BD2 | 14.40 |
| 3/8 | 6 | 3/16 round | BD3 | 15.60 |
| 1/2 | 6 | 3/16 square | BD4 | 20.40 |
| 9/16 | 9 | 3/16 square | BD5 | 23.00 |
| 5/8 | 10 | 1/4 square | BD6 | 24.00 |
| 3/4 | 12 | 1/4 square | BD7 | 27.60 |
| 1 | 12 | 5/16 square | BD9 | 34.40 |
| 1 | 12 | 3/8 square | BD9X | 34.40 |
| 1-1/4 | 16 | 1/2 square | BD11 | 57.00 |
| 1-1/2 | 18 | 1/2 square | BD15 | 75.90 |

Prices do not include tool bits. Replacement screws available. Please inquire.



| SINGLE END - 90° STYLE | | | | |
|------------------------|----------------|-------------------|-------------|------------|
| Dia. of Bar | Overall Length | Tool Bit Diameter | Tool Number | Price Each |
| 1/4 | 2-1/2 | 5/32 round | BS1 | 7.60 |
| 5/16 | 2-1/2 | 3/16 round | BS2 | 8.65 |
| 3/8 | 3 | 3/16 round | BS3 | 9.30 |
| 1/2 | 3 | 3/16 square | BS4 | 12.35 |
| 9/16 | 4-1/2 | 3/16 square | BS5 | 14.00 |
| 5/8 | 5 | 1/4 square | BS6 | 14.50 |
| 3/4 | 6 | 1/4 square | BS7 | 16.70 |
| 1 | 6 | 5/16 square | BS9 | 21.00 |
| 1 | 6 | 3/8 square | BS9X | 21.00 |
| 1-1/4 | 8 | 1/2 square | BS11 | 34.20 |
| 1-1/2 | 9 | 1/2 square | BS15 | 45.60 |

Prices do not include tool bits. Replacement screws available. Please inquire.

◆ BORING TOOL HOLDERS



| TOOL HOLDERS | | | | |
|---------------------|---------------|---------------------|----------|------------|
| Boring Bar Diameter | Tool Bit Size | Size of Holder | Tool No. | Price Each |
| 9/16 | 3/16 | 3/8 x 7/8 x 5-3/8 | THB2 | 68.00 |
| 3/4 | 1/4 | 1/2 x 1-1/8 x 6-1/8 | THB3 | 79.00 |



| HIGH SPEED TOOL BITS | | |
|-------------------------|----------------|------------|
| Size | Overall Length | Price Each |
| ● LIST NO. 704 — ROUND | | |
| 5/32 | 3-1/8 | 3.24 |
| 3/16 | 3-1/2 | 5.00 |
| ● LIST NO. 700 — SQUARE | | |
| 3/16 | 2-1/2 | 3.13 |
| 1/4 | 2-1/2 | 3.24 |
| 1/4 | 4 | 4.99 |
| 5/16 | 2-1/2 | 3.71 |
| 5/16 | 4 | 6.34 |
| 1/2 | 4 | 10.40 |
| 1/2 | 6 | 15.15 |

| SET | |
|--|--|
| DOUBLE END | |
| SET NO. BD459 | |
| 5 Piece Set | |
| Contains 1 Piece of Each: BD1, BD3, BD4, BD6, BD7 | |
| Supplied in Wood Block | |
| SET PRICE — \$100.00 | |

Set does not include tool bits.

| COBALT TOOL BITS | | |
|---|----------------|------------|
| Size | Overall Length | Price Each |
| ● LIST NO. 700C — 5% COBALT—SQUARE | | |
| 3/16 | 2-1/2 | 4.25 |
| 1/4 | 2-1/2 | 4.80 |
| 1/4 | 4 | 7.55 |
| 5/16 | 2-1/2 | 5.60 |
| 5/16 | 4 | 9.62 |
| 1/2 | 4 | 16.90 |
| 1/2 | 6 | 23.07 |
| ● LIST NO. 700SC — 8% SUPER COBALT—SQUARE | | |
| 3/16 | 2-1/2 | 5.60 |
| 1/4 | 2-1/2 | 6.90 |
| 5/16 | 2-1/2 | 8.80 |
| 1/2 | 4 | 20.80 |

LATHE TOOLING

MORSE TAPER LATHE CENTERS

DEAD CENTERS

Hardened and Ground — 60° Included point Angle

- ◆ LIST NO. LA100 — CARBON STEEL
- ◆ LIST NO. LA200 — HIGH SPEED STEEL
- ◆ LIST NO. LA300 — CARBIDE TIPPED



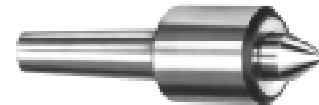
| Morse Taper | Overall Length | Price Each | | |
|-------------|----------------|-----------------------|---------------------------|-----------------------------|
| | | Carbon List No. LA100 | H.S. Steel List No. LA200 | Carb. Tipped List No. LA300 |
| 1 | 3-3/16 | 2.45 | 4.95 | 7.50 |
| 2 | 3-15/16 | 2.95 | 6.50 | 9.50 |
| 3 | 4-15/16 | 4.75 | 8.75 | 15.70 |
| 4 | 6-5/16 | 6.75 | 13.80 | 22.85 |
| 5 | 7-7/8 | 13.50 | 29.00 | 38.00 |
| 6 | 11 | 31.95 | 54.00 | 69.50 |

HEAVY DUTY LIVE CENTERS

Hardened and Ground

PRECISION HIGH QUALITY BEARINGS

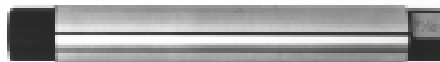
- ◆ LIST NO. LA400 — PRECISION GRADE
- ◆ LIST NO. LA500 — SUPERIOR PRECISION GRADE



| Morse Taper | Max. Lbs. of Work Piece | Tolerance | Price Each | Tolerance | Price Each |
|-------------|-------------------------|-----------|----------------|-----------|----------------|
| | | | List No. LA400 | | List No. LA500 |
| 1 | 220 | .0003 | 29.75 | .0002 | 48.00 |
| 2 | 460 | .0003 | 39.50 | .0001 | 59.00 |
| 3 | 925 | .0003 | 52.50 | .0001 | 69.00 |
| 4 | 1850 | .0003 | 69.50 | .0001 | 95.00 |
| 5 | 4400 | .0004 | 99.00 | .0002 | 127.00 |
| 6 | 7700 | .0004 | 185.00 | .0002 | 310.00 |

◆ LATHE MANDRELS

Hardened and Ground Throughout



These mandrels are made of hardened steel and are accurately ground to size. Designed for setting up accurately bored or reamed blanks and castings for pulleys, handwheels or hubs, on centers, so that the outside diameter can be turned concentrically with the axis of the hole in which the mandrel is fixed.

| Size | Overall Length | Tool No. | Price Each |
|-------|----------------|----------|------------|
| 1/8 | 2-1/2 | LM4 | 5.45 |
| 5/32 | 3 | LM5 | 5.95 |
| 3/16 | 3 | LM6 | 5.95 |
| 7/32 | 3-3/4 | LM7 | 6.50 |
| 1/4 | 3-3/4 | LM8 | 6.50 |
| 9/32 | 4 | LM9 | 6.75 |
| 5/16 | 4 | LM10 | 6.75 |
| 11/32 | 4-1/4 | LM11 | 6.95 |
| 3/8 | 4-1/4 | LM12 | 6.95 |
| 13/32 | 4-1/2 | LM13 | 7.50 |
| 7/16 | 4-1/2 | LM14 | 7.50 |
| 15/32 | 5 | LM15 | 8.50 |
| 1/2 | 5 | LM16 | 8.50 |
| 17/32 | 5-1/4 | LM17 | 9.60 |
| 9/16 | 5-1/4 | LM18 | 9.60 |
| 19/32 | 5-1/2 | LM19 | 9.60 |
| 5/8 | 5-1/2 | LM20 | 9.60 |
| 21/32 | 5-3/4 | LM21 | 9.95 |

| Size | Overall Length | Tool No. | Price Each |
|--------|----------------|----------|------------|
| 11/16 | 5-3/4 | LM22 | 9.95 |
| 23/32 | 6 | LM23 | 9.95 |
| 3/4 | 6 | LM24 | 9.95 |
| 25/32 | 6-1/4 | LM25 | 12.50 |
| 13/16 | 6-1/4 | LM26 | 12.50 |
| 27/32 | 6-1/2 | LM27 | 12.50 |
| 7/8 | 6-1/2 | LM28 | 12.50 |
| 29/32 | 6-3/4 | LM29 | 13.75 |
| 15/16 | 6-3/4 | LM30 | 13.75 |
| 31/32 | 7 | LM31 | 13.75 |
| 1 | 7 | LM32 | 13.75 |
| 1-1/16 | 7-1/4 | LM34 | 17.25 |
| 1-1/8 | 7-1/2 | LM36 | 17.25 |
| 1-3/16 | 7-3/4 | LM38 | 19.95 |
| 1-1/4 | 8 | LM40 | 19.95 |
| 1-5/16 | 8-1/4 | LM42 | 24.50 |
| 1-3/8 | 8-1/2 | LM44 | 24.50 |
| 1-7/16 | 8-3/4 | LM46 | 28.50 |

| Size | Overall Length | Tool No. | Price Each |
|---------|----------------|----------|------------|
| 1-1/2 | 9 | LM48 | 28.50 |
| 1-9/16 | 9-1/4 | LM50 | 32.25 |
| 1-5/8 | 9-1/2 | LM52 | 32.25 |
| 1-11/16 | 9-3/4 | LM54 | 36.50 |
| 1-3/4 | 10 | LM56 | 36.50 |
| 1-13/16 | 10-1/4 | LM58 | 41.75 |
| 1-7/8 | 10-1/2 | LM60 | 41.75 |
| 1-15/16 | 10-3/4 | LM62 | 45.50 |
| 2 | 11 | LM64 | 45.50 |
| 2-1/8 | 11-1/2 | LM68 | 49.75 |
| 2-1/4 | 12 | LM72 | 55.75 |
| 2-3/8 | 12 | LM76 | 59.75 |
| 2-1/2 | 12-1/2 | LM82 | 67.00 |
| 2-5/8 | 12-1/2 | LM84 | 78.00 |
| 2-3/4 | 13 | LM88 | 85.00 |
| 2-7/8 | 13 | LM92 | 89.00 |
| 3 | 13 | LM96 | 99.00 |

◆ EXPANDING MANDRELS

Hardened and Precision Ground



Center holes are ground and lapped. Automatic expansion feature can be utilized on any bore within the range of the mandrel. Sizes up to 1" furnished with one sleeve, over 1" two sleeves.

| Size Range | Length of Arbor | Length of Sleeve | Tool No. | Price Each | Size Range | Length of Arbor | Length of Sleeve | Tool No. | Price Each |
|--------------|-----------------|------------------|----------|------------|---------------|-----------------|------------------|----------|------------|
| 1/2 - 9/16 | 5 | 2-1/2 | LME1 | 55.00 | 7/8 - 1 | 7 | 3-1/4 | LME5 | 89.50 |
| 9/16 - 21/32 | 6 | 2-3/4 | LME2 | 69.00 | 1 - 1-1/4 | 9 | 4 | LME6 | 159.00 |
| 21/32 - 3/4 | 7 | 2-3/4 | LME3 | 72.00 | 1-1/4 - 1-1/2 | 9 | 4 | LME7 | 169.50 |
| 3/4 - 7/8 | 7 | 3-1/4 | LME4 | 84.00 | 1-1/2 - 2 | 11-1/2 | 5 | LME8 | 185.00 |

SET

SET NO. LME100
5 Piece Mandrel Set
1/2 to 1"
SET PRICE — \$359.00



MADE IN U.S.A.— EXCLUSIVELY BY A.P.T.

◆ TRI-DEX INDEXABLE END MILLS REGULAR LENGTH

TRIANGLE INSERTED — POSITIVE RAKE — 90° CUT



- Low cost
- Finest quality and workmanship
- A large range of standard diameters available
- A wide variety of shanks to choose from
- All sizes use standard 3/8" I.C. triangle inserts
- One clamp fits all tool sizes
- Used effectively on low horsepower milling machines
- Simple, rugged clamp design
- Versatile - can be used for many different types of cuts
- Can be used with inserts with wiping flats for improved finish

| TPG TRIANGLE — Positive rake — Ground all over | | | | | | |
|---|--------|------|-----------|------------|-----------|-------------|
| CARBIDE INSERTS | | | | | | |
| Insert Number | Radius | I.C. | Thickness | Price Each | | |
| | | | | C-2 | C-5 & C-6 | TiN Coated* |
| TPG-321 | 1/64 | 3/8 | 1/8 | 4.89 | 5.18 | 6.21 |
| TPG-322 | 1/32 | 3/8 | 1/8 | 4.89 | 5.18 | 6.21 |
| TPG-323 | 3/64 | 3/8 | 1/8 | 4.89 | 5.18 | 6.21 |
| TPG-324 | 1/16 | 3/8 | 1/8 | 4.89 | 5.18 | 6.21 |

*C-5 & C-6 Grade TiN Coated

| TPC TRIANGLE — Positive rake — Ground all over with wiping flats on three corners. | | | | | | |
|---|--------|------|-----------|------------|-----------|-------------|
| CARBIDE INSERTS WITH WIPING FLATS | | | | | | |
| Insert Number | Radius | I.C. | Thickness | Price Each | | |
| | | | | C-2 | C-5 & C-6 | TiN Coated* |
| TPC-32ZR | - | 3/8 | 1/8 | 4.80 | 4.98 | 5.85 |

*C-5 & C-6 Grade TiN Coated

| REPLACEMENT PARTS LIST | | |
|------------------------|----------------------------------|------------|
| Part No. | Description | Price Each |
| CTD-2 | Hold Down Clamp | 5.55 |
| CS832-12 | Clamp Screw | .50 |
| CSW | 9/64 Allen Wrench for 8-32 Screw | .50 |

| END MILLS | | | | |
|------------------|---------------------|----------------|-------------|------------|
| Cutting Diameter | Shank Dia. or Style | No. of Inserts | Tool Number | Price Each |
| 3/4 | 1/2 | 1 | EM075-50 | 55.00 |
| 3/4 | 3/4 | 1 | EM075-34 | 55.00 |
| 3/4 | R-8 | 1 | EM075-R8 | 74.00 |
| 7/8 | 3/4 | 1 | EM087-34 | 62.00 |
| 1 | 1 | 1 | EM100-1 | 70.00 |
| 1 | 3/4 | 1 | EM100-34 | 68.00 |
| 1 | R-8 | 1 | EM100-R8 | 74.00 |
| 1-1/4 | 1 | 2 | EM125-1 | 77.00 |
| 1-1/4 | 3/4 | 2 | EM125-34 | 79.00 |
| 1-1/4 | R-8 | 2 | EM125-R8 | 86.00 |
| 1-1/4 | 40V-Flange | 2 | EM125-V40 | 185.44 |
| 1-3/8 | 1 | 2 | EM137-1 | 91.43 |
| 1-3/8 | 3/4 | 2 | EM137-34 | 94.00 |
| 1-3/8 | R-8 | 2 | EM137-R8 | 98.00 |
| 1-1/2 | 1 | 3 | EM150-1 | 103.00 |
| 1-1/2 | 3/4 | 3 | EM150-34 | 106.00 |
| 1-1/2 | R-8 | 3 | EM150-R8 | 114.00 |
| 1-1/2 | 40V-Flange | 3 | EM150-V40 | 213.00 |
| 1-5/8 | 3/4 | 3 | EM162-34 | 108.00 |
| 1-5/8 | 1 | 3 | EM162-1 | 108.00 |
| 1-5/8 | R-8 | 3 | EM162-R8 | 122.00 |
| 1-3/4 | 1 | 3 | EM175-1 | 124.00 |
| 1-3/4 | 3/4 | 3 | EM175-34 | 126.00 |
| 1-3/4 | R-8 | 3 | EM175-R8 | 143.00 |
| 2 | 1 | 3 | EM20-1 | 141.00 |
| 2 | 3/4 | 3 | EM20-34 | 144.00 |
| 2 | R-8 | 3 | EM20-R8 | 156.00 |
| 2 | 30 NST | 3 | EM20-S30 | 182.00 |
| 2 | 40 NST | 3 | EM20-S40 | 207.00 |
| 2 | 40V-Flange | 3 | EM20-V40 | 247.00 |
| 2-1/4 | R-8 | 4 | EM225-R8 | 207.00 |
| 2-1/2 | 1-1/4 | 5 | EM250-125 | 227.00 |
| 2-1/2 | R-8 | 5 | EM250-R8 | 241.00 |
| 2-3/4 | R-8 | 5 | EM275-R8 | 246.00 |
| 3 | 1-1/4 | 5 | EM300-125 | 250.00 |
| 3 | R-8 | 5 | EM300-R8 | 271.00 |
| 3 | 40 NST | 5 | EM300-S40 | 271.00 |
| 3 | 40V-Flange | 5 | EM300-V40 | 310.00 |
| 3-1/2 | R-8 | 5 | EM350-R8 | 296.00 |
| 4 | R-8 | 6 | EM400-R8 | 341.00 |

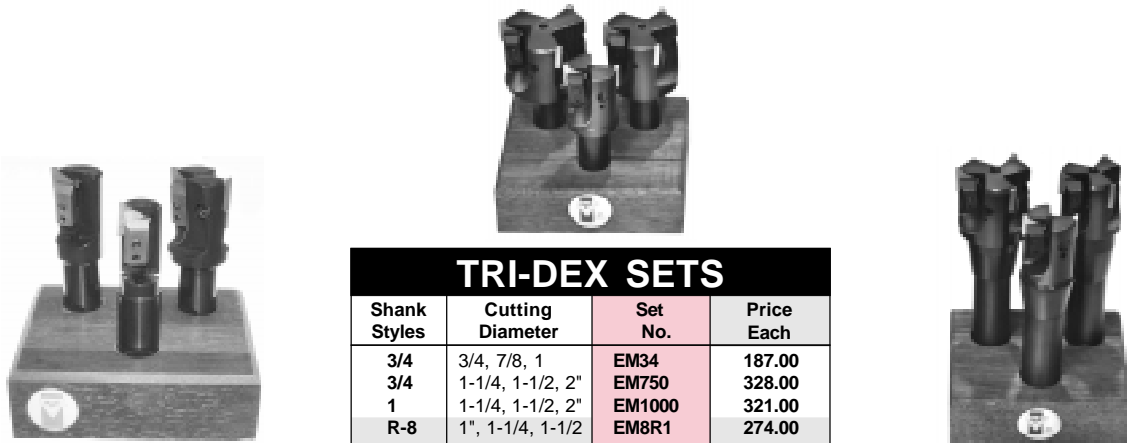
Inserts sold separately. Cutter body length 1-5/8".



◆ TRI-DEX INDEXABLE END MILL SETS REGULAR LENGTH

TRIANGLE INSERTED — POSITIVE RAKE — 90° CUT

Sets supplied in wood block.



| TRI-DEX SETS | | | |
|--------------|------------------|---------|------------|
| Shank Styles | Cutting Diameter | Set No. | Price Each |
| 3/4 | 3/4, 7/8, 1 | EM34 | 187.00 |
| 3/4 | 1-1/4, 1-1/2, 2" | EM750 | 328.00 |
| 1 | 1-1/4, 1-1/2, 2" | EM1000 | 321.00 |
| R-8 | 1", 1-1/4, 1-1/2 | EM8R1 | 274.00 |
| R-8 | 2", 2-1/2, 3" | EM8R2 | 668.00 |
| R-8 | 2", 2-1/4, 2-1/2 | EM8R3 | 602.00 |
| R-8 | 2-3/4, 3", 3-1/2 | EM8R4 | 811.00 |
| V-Flange | 1-1/4, 1-1/2, 2" | EMV1000 | 645.44 |

Inserts sold separately.

◆ TRI-DEX INDEXABLE END MILLS WITH COOLANT FEED

TRIANGLE INSERTED — POSITIVE RAKE — 90° CUT

Sets supplied in wood block.

- Tool life is greatly improved when coolant is fed to each cutting edge of the tool
- Allows increased cutting speeds and feeds



- Greatly improves surface finishes
- Extends insert life
- Uses standard 3/8" I.C. triangle inserts
- One clamp fits all tools

| TPG TRIANGLE — Positive rake ground all over | | | | | | |
|--|--------|------|-----------|------------|-----------|-------------|
| CARBIDE INSERTS | | | | | | |
| Insert Number | Radius | I.C. | Thickness | Price Each | | |
| | | | | C-2 | C-5 & C-6 | TiN Coated* |
| TPG-321 | 1/64 | 3/8 | 1/8 | 4.89 | 5.18 | 6.21 |
| TPG-322 | 1/32 | 3/8 | 1/8 | 4.89 | 5.18 | 6.21 |
| TPG-323 | 3/64 | 3/8 | 1/8 | 4.89 | 5.18 | 6.21 |
| TPG-324 | 1/16 | 3/8 | 1/8 | 4.89 | 5.18 | 6.21 |

*C-5 & C-6 Grade TiN Coated

| TPC TRIANGLE — Positive rake ground all over with wiping flats on three corners. | | | | | | |
|--|--------|------|-----------|------------|-----------|-------------|
| CARBIDE INSERTS WITH WIPING FLATS | | | | | | |
| Insert Number | Radius | I.C. | Thickness | Price Each | | |
| | | | | C-2 | C-5 & C-6 | TiN Coated* |
| TPC-32ZR | — | 3/8 | 1/8 | 4.80 | 4.98 | 5.85 |

*C-5 & C-6 Grade TiN Coated

| END MILLS | | | | |
|------------------|---------------------|----------------|-------------|------------|
| Cutting Diameter | Shank Dia. or Style | No. of Inserts | Tool Number | Price Each |
| 3/4 | 3/4 | 1 | EMC075-34 | 71.76 |
| 1 | 3/4 | 1 | EMC100-34 | 89.59 |
| 1 | 1 | 1 | EMC100-1 | 89.59 |
| 1-1/4 | 3/4 | 2 | EMC125-34 | 100.00 |
| 1-1/4 | 1 | 2 | EMC125-1 | 100.00 |
| 1-1/2 | 1 | 3 | EMC150-1 | 131.96 |
| 1-3/4 | 1 | 3 | EMC175-1 | 159.39 |
| 2 | 1 | 3 | EMC20-1 | 175.15 |
| 3 | 1-1/4 | 5 | EMC300-125 | 302.34 |

Inserts sold separately. Cutter body length 1-5/8".

| SETS | | | |
|--------------|------------------|------------|------------|
| Shank Styles | Cutting Diameter | Set Number | Price Each |
| 3/4 | 3/4, 1", 1-1/4 | EMC34 | 259.00 |
| 1 | 1-1/2, 1-3/4, 2" | EMC1000 | 466.50 |

Inserts sold separately.

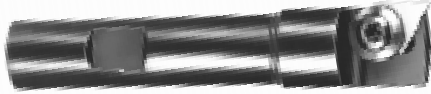
| REPLACEMENT PARTS LIST | | |
|------------------------|----------------------------------|------------|
| Part No. | Description | Price Each |
| CTD-2 | Hold Down Clamp | 5.55 |
| CS832-12 | Clamp Screw | .50 |
| CSW | 9/64 Allen Wrench for 8-32 Screw | .50 |



MADE IN U.S.A. — EXCLUSIVELY BY A.P.T.

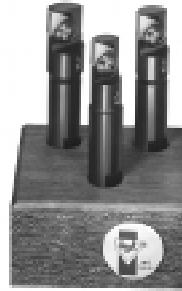
◆ TRI-DEX INDEXABLE END MILLS MINIATURE SERIES

TRIANGLE INSERTED — POSITIVE RAKE — 90° CUT



- One clamp fits all sizes
- Uses standard 1/4" I.C. triangle inserts
- Fine surface finishes

| END MILLS | | | | | | |
|------------------|----------------|-------------|----------------|-------------|------------|--|
| Cutting Diameter | Shank Diameter | Body Length | Overall Length | Tool Number | Price Each | |
| STANDARD | | | | | | |
| 1/2 | 1/2 | 1 | 3 | EMM500-5 | 49.00 | |
| 9/16 | 1/2 | 1 | 3 | EMM562-5 | 49.00 | |
| 5/8 | 1/2 | 1 | 3 | EMM625-5 | 49.00 | |
| METRIC | | | | | | |
| 12mm | 1/2 | 1 | 3 | EMM12M-5 | 49.00 | |
| 15mm | 1/2 | 1 | 3 | EMM15M-5 | 49.00 | |
| 18mm | 1/2 | 1 | 3 | EMM18M-5 | 49.00 | |



| SETS | |
|---|--|
| STANDARD | |
| Contains 1 piece of each: 1/2, 9/16, 5/8 | |
| SET NO. EMM500 | |
| PRICE*— \$144.00 | |
| METRIC | |
| Contains 1 piece of each: 12mm, 15mm, 18mm | |
| SET NO. EMM500A | |
| PRICE*— \$144.00 | |

*Torx® wrench included. Set supplied in wood block. Inserts sold separately.



TPG TRIANGLE — Positive rake ground all over

CARBIDE INSERTS

| Insert Number | Radius | I.C. | Thickness | Price Each | | |
|---------------|--------|------|-----------|------------|-----------|-------------|
| | | | | C-2 | C-5 & C-6 | TiN Coated* |
| TPG-221 | 1/64 | 1/4 | 1/8 | 4.14 | 4.37 | 5.30 |
| TPG-222 | 1/32 | 1/4 | 1/8 | 4.14 | 4.37 | 5.30 |
| TPG-223 | 3/64 | 1/4 | 1/8 | 4.14 | 4.37 | 5.30 |

*C-5 & C-6 Grade TiN Coated

REPLACEMENT PARTS LIST

| Part No. | Description | Price Each |
|----------|----------------------------------|------------|
| CTM | Hold Down Clamp | 1.85 |
| CB632-38 | Torx® Clamp Screw | 1.50 |
| CTW-10 | T-10 Torx® Wrench for 6-32 Screw | 2.45 |

◆ TRI-DEX INDEXABLE END MILLS EXTRA LONG LENGTH

TRIANGLE INSERTED — POSITIVE RAKE — 90° CUT

CUTTER BODY LENGTH 4"



- Used where extra long reach is required
- Available in a wide range of diameters
- A large variety of shank styles
- Uses standard 3/8" I.C. triangle inserts
- One clamp fits all size

| END MILLS | | | | | |
|------------------|---------------------|----------------|----------------|-------------|------------|
| Cutting Diameter | Shank Dia. or Style | Overall Length | No. of Inserts | Tool Number | Price Each |
| 3/4 | 3/4 | 6-1/4 | 1 | EML075-34 | 78.00 |
| 1 | 3/4 | 6-1/4 | 1 | EML100-34 | 95.00 |
| 1-1/4 | 1 | 6-1/4 | 2 | EML125-1 | 109.00 |
| 1-1/4 | R-8 | 8-1/4 | 2 | EML125-R8 | 122.00 |
| 1-1/2 | 1 | 6-1/4 | 3 | EML150-1 | 144.00 |
| 1-1/2 | R-8 | 8-1/4 | 3 | EML150-R8 | 161.00 |
| 2 | 1 | 6-1/4 | 3 | EML20-1 | 194.00 |
| 2 | 1-1/4 | 6-1/4 | 3 | EML20-125 | 184.00 |
| 2 | R-8 | 8-1/4 | 3 | EML20-R8 | 216.00 |
| 2-1/2 | 1-1/4 | 6-1/4 | 5 | EML250-125 | 298.00 |
| 2-1/2 | R-8 | 8-1/4 | 5 | EML250-R8 | 316.00 |
| 3 | 1-1/4 | 6-1/4 | 5 | EML300-125 | 321.00 |
| 3 | R-8 | 8-1/4 | 5 | EML300-R8 | 356.00 |

Inserts sold separately.

REPLACEMENT PARTS LIST

| Part No. | Description | Price Each |
|----------|----------------------------------|------------|
| CTD-2 | Hold Down Clamp | 5.55 |
| CS832-12 | Clamp Screw | .50 |
| CSW | 9/64 Allen Wrench for 8-32 Screw | .50 |

SETS

| | |
|--|---|
| R-8 SHANK Contains 1 piece of each: 2, 2-1/2, 3 Supplied in wood block. SET NO. EML8R2 PRICE*— \$884.00 | 1-1/4" SHANK Contains 1 piece of each: 2, 2-1/2, 3 Supplied in wood block. SET NO. EML12500 PRICE*— \$799.00 |
|--|---|

*Inserts sold separately.



TPG TRIANGLE — Positive rake ground all over

CARBIDE INSERTS

| Insert Number | Radius | I.C. | Thickness | Price Each | | |
|---------------|--------|------|-----------|------------|-----------|-------------|
| | | | | C-2 | C-5 & C-6 | TiN Coated* |
| TPG-321 | 1/64 | 3/8 | 1/8 | 4.89 | 5.18 | 6.21 |
| TPG-322 | 1/32 | 3/8 | 1/8 | 4.89 | 5.18 | 6.21 |
| TPG-323 | 3/64 | 3/8 | 1/8 | 4.89 | 5.18 | 6.21 |
| TPG-324 | 1/16 | 3/8 | 1/8 | 4.89 | 5.18 | 6.21 |

*C-5 & C-6 Grade TiN Coated



TPC TRIANGLE — Positive rake ground all over with wiping flats on three corners.

CARBIDE INSERTS WITH WIPING FLATS

| Insert Number | Radius | I.C. | Thickness | Price Each | | |
|---------------|--------|------|-----------|------------|-----------|-------------|
| | | | | C-2 | C-5 & C-6 | TiN Coated* |
| TPC-32ZR | — | 3/8 | 1/8 | 4.80 | 4.98 | 5.85 |

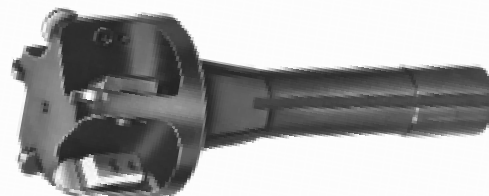
*C-5 & C-6 Grade TiN Coated



◆ ROUND INDEXABLE END MILLS REGULAR LENGTH

ROUND INSERTED — POSITIVE RAKE

BODY CUTTER LENGTH 1-5/8"



- Use as a roughing cutter for higher stock removal
- Use in applications where a radius corner is desired
- Adjust speeds and feeds for good surface finishes
- Use effectively on low horsepower milling machines
- Achieve better finishes
- More cutting edges
- Use standard 1/2" round inserts

| END MILLS | | | | | |
|------------------|---------------------|----------------|-------------|------------|--|
| Cutting Diameter | Shank Dia. or Style | No. of Inserts | Tool Number | Price Each | |
| 3/4 | 3/4 | 1 | EMR075-34 | 61.00 | |
| 7/8 | 3/4 | 1 | EMR087-34 | 68.00 | |
| 1 | 3/4 | 1 | EMR100-34 | 75.00 | |
| 1 | R-8 | 1 | EMR100-R8 | 79.00 | |
| 1-1/4 | 1 | 2 | EMR125-1 | 84.50 | |
| 1-1/4 | 3/4 | 2 | EMR125-34 | 87.00 | |
| 1-1/4 | R-8 | 2 | EMR125-R8 | 94.00 | |
| 1-1/2 | 1 | 3 | EMR150-1 | 112.00 | |
| 1-1/2 | 3/4 | 3 | EMR150-34 | 114.00 | |
| 1-1/2 | R-8 | 3 | EMR150-R8 | 126.00 | |
| 1-3/4 | 3/4 | 3 | EMR175-34 | 137.00 | |
| 1-3/4 | R-8 | 3 | EMR175-R8 | 156.00 | |
| 2 | 1 | 3 | EMR20-1 | 156.00 | |
| 2 | 3/4 | 3 | EMR20-34 | 159.00 | |
| 2 | R-8 | 3 | EMR20-R8 | 165.00 | |
| 2-1/2 | 1-1/4 | 5 | EMR250-125 | 252.00 | |
| 2-1/2 | R-8 | 5 | EMR250-R8 | 263.00 | |
| 3 | 1-1/4 | 5 | EMR300-125 | 270.00 | |
| 3 | R-8 | 5 | EMR300-R8 | 286.00 | |

Inserts sold separately.

| SETS | | | | TOOL ROOM SET |
|--------------|------------------|-------------|------------|---|
| Shank Styles | Cutting Diameter | Tool Number | Price Each | |
| 3/4 | 3/4, 7/8, 1 | EMR34 | 203.00 | SET NO. EM3000 3 Piece Set Contains 1 Piece of Ea. 1" Diameter Triangle Inserted-EM100-34 Square Inserted-QMD100-34 Round Inserted-EMR100-34 SET PRICE - \$221.00 |
| 3/4 | 1-1/4, 1-1/2, 2 | EMR750 | 360.00 | |
| 1 | 1-1/4, 1-1/2, 2 | EMR1000 | 351.00 | |
| R-8 | 1, 1-1/4, 1-1/2 | EMR8R1 | 299.00 | |
| R-8 | 2, 2-1/2, 3 | EMR8R2 | 712.00 | |

Inserts sold separately.

| RPG | | ROUND — Positive rake ground all over | | | | |
|-----------------|--------|---------------------------------------|-----------|------------|-----------|-------------|
| CARBIDE INSERTS | | | | | | |
| Insert Number | Radius | I.C. | Thickness | Price Each | | |
| | | | | C-2 | C-5 & C-6 | TiN Coated* |
| RPG-42 | 1/4 | 1/2 | 1/8 | 4.40 | 4.95 | 5.90 |

*C-5 & C-6 Grade TiN Coated

| REPLACEMENT PARTS LIST | | |
|------------------------|----------------------------------|------------|
| Part No. | Description | Price Each |
| CTD-2 | Hold Down Clamp | 5.55 |
| CS832-12 | Clamp Screw | .50 |
| CSW | 9/64 Allen Wrench for 8-32 Screw | .50 |

◆ ROUND INDEXABLE END MILLS EXTRA LONG LENGTH

ROUND INSERTED — POSITIVE RAKE

BODY CUTTER LENGTH 4"



- Use when extra long reach is required
- Higher metal removal rates
- Achieve better finishes
- More cutting edges
- Use standard 1/2" round inserts

| END MILLS | | | | | |
|------------------|---------------------|----------------|----------------|-------------|------------|
| Cutting Diameter | Shank Dia. or Style | Overall Length | No. of Inserts | Tool Number | Price Each |
| 3/4 | 3/4 | 6-1/4 | 1 | EMLR075-34 | 84.00 |
| 1-1/4 | R-8 | 8-1/4 | 2 | EMLR125-R8 | 133.00 |
| 1-1/2 | 1 | 6-1/4 | 3 | EMLR150-1 | 157.00 |
| 1-1/2 | R-8 | 8-1/4 | 3 | EMLR150-R8 | 178.00 |
| 2 | 1 | 6-1/4 | 3 | EMLR20-1 | 206.00 |
| 2 | 1-1/4 | 6-1/4 | 3 | EMLR20-125 | 206.00 |
| 2 | R-8 | 8-1/4 | 3 | EMLR20-R8 | 236.00 |
| 2-1/2 | 1-1/4 | 6-1/4 | 5 | EMLR250-125 | 327.00 |
| 2-1/2 | R-8 | 8-1/4 | 5 | EMLR250-R8 | 344.00 |
| 3 | 1-1/4 | 6-1/4 | 5 | EMLR300-125 | 351.00 |
| 3 | R-8 | 8-1/4 | 5 | EMLR300-R8 | 385.00 |

Inserts sold separately.

| RPG | | ROUND — Positive rake — Ground all over | | | | |
|-----------------|--------|---|-----------|------------|-----------|-------------|
| CARBIDE INSERTS | | | | | | |
| Insert Number | Radius | I.C. | Thickness | Price Each | | |
| | | | | C-2 | C-5 & C-6 | TiN Coated* |
| RPG-42 | 1/4 | 1/2 | 1/8 | 4.40 | 4.95 | 5.90 |

*C-5 & C-6 Grade TiN Coated

| REPLACEMENT PARTS LIST | | |
|------------------------|----------------------------------|------------|
| Part No. | Description | Price Each |
| CTD-2 | Hold Down Clamp | 5.55 |
| CS832-12 | Clamp Screw | .50 |
| CSW | 9/64 Allen Wrench for 8-32 Screw | .50 |



MADE IN U.S.A. — EXCLUSIVELY BY A.P.T.

◆ QUAD-MILL INDEXABLE END MILLS

SQUARE INSERTED — POSITIVE RAKE — 15° AND 45° LEADS

- Finest quality and workmanship
- Uses standard 1/2" I.C. square inserts
- One clamp fits all tools
- Easy stock removal on low horsepower equipment
- Higher metal removal rates
- Fine surface finishes



| END MILLS | | | | |
|-------------------|---------------------|----------------|-------------|------------|
| Cutting Diameter | Shank Dia. or Style | No. of Inserts | Tool Number | Price Each |
| 15° LEAD** | | | | |
| 1 | 3/4 | 1 | QM100-34 | 76.00 |
| 1 | R-8 | 1 | QM100-R8 | 95.00 |
| 2 | 1 | 3 | QM20-100 | 149.00 |
| 2 | R-8 | 3 | QM20-R8 | 167.00 |
| 2 | 1-1/4 | 3 | QM20-125 | 149.00 |
| 2-1/2 | R-8 | 5 | QM250-R8 | 259.00 |
| 2-1/2 | 1-1/4 | 5 | QM250-125 | 241.00 |
| 3 | R-8 | 5 | QM30-R8 | 287.00 |
| 3 | 1-1/4 | 5 | QM30-125 | 263.00 |
| 45° LEAD | | | | |
| 3/4 | 3/4 | 1 | QMD075-34 | 68.00 |
| 1 | 3/4 | 1 | QMD100-34 | 76.00 |
| 1 | R-8 | 1 | QMD100-R8 | 95.00 |
| 1-1/4 | 3/4 | 1 | QMD125-34 | 89.00 |
| 1-1/4 | R-8 | 1 | QMD125-R8 | 118.00 |
| 1-1/2 | 3/4 | 1 | QMD150-34 | 111.00 |
| 1-1/2 | R-8 | 1 | QMD150-R8 | 134.00 |
| 2 | 3/4 | 3 | QMD20-34 | 149.00 |
| 2 | R-8 | 3 | QMD20-R8 | 166.00 |
| 2 | 1-1/4 | 3 | QMD20-125 | 149.00 |
| 2-1/2 | R-8 | 4 | QMD250-R8 | 259.00 |
| 3 | R-8 | 5 | QMD30-R8 | 287.00 |
| 3 | 1-1/4 | 5 | QMD30-125 | 263.00 |

Inserts sold separately.

** Note: Do Not Use SPG-424 — 1/16 Radius on 15° Lead End Mills

SPG SQUARE
Positive rake — Ground all over

SPU SQUARE
Positive rake — Ground top and bottom

| CARBIDE INSERTS | | | | | | |
|-----------------|--------|------|-----------|------------|-----------|-------------|
| Insert Number | Radius | I.C. | Thickness | Price Each | | |
| | | | | C-2 | C-5 & C-6 | TiN Coated* |
| SPG-422 | 1/32 | 1/2 | 1/8 | 4.75 | 5.12 | 5.80 |
| SPG-423 | 3/64 | 1/2 | 1/8 | 4.75 | 5.12 | 5.80 |
| **SPG-424 | 1/16 | 1/2 | 1/8 | 4.75 | 5.12 | 5.80 |
| SPU-422 | 1/32 | 1/2 | 1/8 | 4.10 | 4.46 | 5.13 |
| SPU-423 | 3/64 | 1/2 | 1/8 | 4.10 | 4.46 | 5.13 |

*C-5 & C-6 Grade TiN Coated

** Note: Do Not Use SPG-424 — 1/16 Radius on 15° Lead End Mills

| REPLACEMENT PARTS LIST | | |
|------------------------|----------------------------------|------------|
| Part No. | Description | Price Each |
| CTD-2 | Hold Down Clamp | 5.55 |
| CS832-12 | Clamp Screw | .50 |
| CSW | 9/64 Allen Wrench for 8-32 Screw | .50 |

SPC SQUARE — Positive rake — Ground all over with wiping flats on four corners

CARBIDE INSERTS WITH WIPING FLATS

| Insert Number | Radius | I.C. | Thickness | Price Each | | |
|---------------|--------|------|-----------|------------|-----------|-------------|
| | | | | C-2 | C-5 & C-6 | TiN Coated* |
| SPC-42ZR | — | 1/2 | 1/8 | 4.95 | 5.30 | 6.35 |

*C-5 & C-6 Grade TiN Coated



| QUAD-MILL SETS | | | |
|---------------------|------------------|------------|------------|
| Shank Dia. or Style | Cutting Diameter | Set Number | Price Each |
| 15° LEAD | | | |
| R-8 | 2, 2-1/2, 3 | QMS15-R82 | 707.00 |
| 1-1/4 | 2, 2-1/2, 3 | QMS15-125 | 650.00 |
| 45° LEAD | | | |
| R-8 | 1, 1-1/4, 1-1/2 | QMS45-R81 | 344.00 |
| R-8 | 2, 2-1/2, 3 | QMS45-R82 | 707.00 |
| 3/4 | 1, 1-1/4, 1-1/2 | QMS45-34 | 276.00 |

Inserts sold separately.





◆ DYNA-MILL INDEXABLE END MILLS HEAVY DUTY

TRIANGLE INSERTED — NEGATIVE RAKE — 90° CUT



- For use in heavy duty milling application
- Higher metal removal rates
- Both styles use standard 1/2" I.C. inserts
- Unique clamping mechanism, one clamp fits all sizes



| END MILLS | | | | | |
|------------------|---------------|----------------|----------------|-------------|------------|
| Cutting Diameter | Length of Cut | Shank Diameter | No. of Inserts | Tool Number | Price Each |
| 1-1/4 | 2-1/8 | 1-1/4 | 2 | DM19 | 102.00 |
| 1-1/2 | 2-1/8 | 1-1/4 | 2 | DM20 | 122.00 |
| 1-3/4 | 2-1/8 | 1-1/4 | 3 | DM21 | 148.00 |
| 2 | 2-1/8 | 1-1/4 | 3 | DM22 | 161.00 |
| 2-1/2 | 2-1/8 | 1-1/4 | 3 | DM22.5 | 229.00 |
| 3 | 2-1/8 | 1-1/4 | 5 | DM23 | 267.00 |

| FACE MILLS | | | | | |
|------------------|---------------|-----------|----------------|-------------|------------|
| Cutting Diameter | Length of Cut | Hole Size | No. of Inserts | Tool Number | Price Each |
| 4 | 2-3/4 | 1-1/4 | 6 | DM24 | 356.00 |
| 5 | 2-3/4 | 1-1/2 | 7 | DM25 | 424.00 |
| 6 | 2-3/4 | 2 | 8 | DM26 | 536.00 |
| 8 | 2-3/4 | 2-1/2 | 10 | DM28 | 736.00 |

Inserts sold separately.

Inserts sold separately.

| Insert Number | Radius | I.C. | Thickness | Price Each | | |
|---------------|--------|------|-----------|------------|-----------|-------------|
| | | | | C-2 | C-5 & C-6 | TIN Coated* |
| TNMG-431 | 1/64 | 1/2 | 3/16 | 3.94 | 4.46 | 5.20 |
| TNMG-432 | 1/32 | 1/2 | 3/16 | 3.94 | 4.46 | 5.20 |
| TNMG-433 | 3/64 | 1/2 | 3/16 | 3.94 | 4.46 | 5.20 |
| TNMG-434 | 1/16 | 1/2 | 3/16 | 3.94 | 4.46 | 5.20 |
| TNMG-438 | 1/8 | 1/2 | 3/16 | 3.94 | 4.46 | 5.20 |

*C-5 & C-6 Grade TiN Coated

| REPLACEMENT PARTS LIST | | |
|------------------------|---------------------------|------------|
| Part No. | Description | Price Each |
| CDM | Hold Down Clamp | 7.60 |
| CB1032-12 | Clamp Screw for DM19 only | .50 |
| CS1032-58 | Clamp Screw | .50 |
| AS5818-2 | Arbor Screw for DM24 only | 2.00 |

◆ TRI-DEX INDEXABLE FACE MILLS

TRIANGLE INSERTED — POSITIVE RAKE — 90° CUT

- Achieve face milling cuts at higher R.P.M.'s
- Use in low horse power milling machines
- Results in finer finishes

- One clamp fits all sizes
- Uses standard 3/8" I.C. triangle inserts
- Use with standard shell end mill adapters



| Insert Number | Radius | I.C. | Thickness | Price Each | | |
|---------------|--------|------|-----------|------------|-----------|-------------|
| | | | | C-2 | C-5 & C-6 | TIN Coated* |
| TPG-320 | 0 | 3/8 | 1/8 | 4.89 | 5.18 | 6.21 |
| TPG-321 | 1/64 | 3/8 | 1/8 | 4.89 | 5.18 | 6.21 |
| TPG-322 | 1/32 | 3/8 | 1/8 | 4.89 | 5.18 | 6.21 |
| TPG-323 | 3/64 | 3/8 | 1/8 | 4.89 | 5.18 | 6.21 |
| TPG-324 | 1/16 | 3/8 | 1/8 | 4.89 | 5.18 | 6.21 |

| CARBIDE INSERTS | | | | | | |
|-----------------|--------|------|-----------|------------|-----------|-------------|
| Insert Number | Radius | I.C. | Thickness | Price Each | | |
| | | | | C-2 | C-5 & C-6 | TIN Coated* |
| TPG-320 | 0 | 3/8 | 1/8 | 4.89 | 5.18 | 6.21 |
| TPG-321 | 1/64 | 3/8 | 1/8 | 4.89 | 5.18 | 6.21 |
| TPG-322 | 1/32 | 3/8 | 1/8 | 4.89 | 5.18 | 6.21 |
| TPG-323 | 3/64 | 3/8 | 1/8 | 4.89 | 5.18 | 6.21 |
| TPG-324 | 1/16 | 3/8 | 1/8 | 4.89 | 5.18 | 6.21 |

*C-5 & C-6 Grade TiN Coated

| FACE MILLS | | | | | |
|------------------|---------------|-----------|----------------|-------------|------------|
| Cutting Diameter | Length of Cut | Hole Size | No. of Inserts | Tool Number | Price Each |
| 2 | 1-3/4 | 3/4 | 3 | EMS200 | 148.00 |
| 2-1/2 | 2 | 3/4 | 5 | EMS250 | 213.00 |
| 3 | 2 | 1 | 5 | EMS300 | 229.00 |

| REPLACEMENT PARTS LIST | | |
|------------------------|----------------------------------|------------|
| Part No. | Description | Price Each |
| CTD-2 | Hold Down Clamp | 5.55 |
| CSW | 9/64 Allen Wrench for 8-32 Screw | .50 |
| CS832-12 | Clamp Screw | .50 |
| AS3824-114 | Shell Mill Arbor Screw EMS200 | 1.25 |
| AS3824-112 | Shell Mill Arbor Screw EMS250 | 1.50 |
| AS1220-112 | Shell Mill Arbor Screw EMS300 | 1.75 |

Inserts sold separately.



MADE IN U.S.A. — EXCLUSIVELY BY A.P.T.

SLOT MASTER[®] ADJUSTABLE WIDTH INDEXABLE MILLING CUTTER

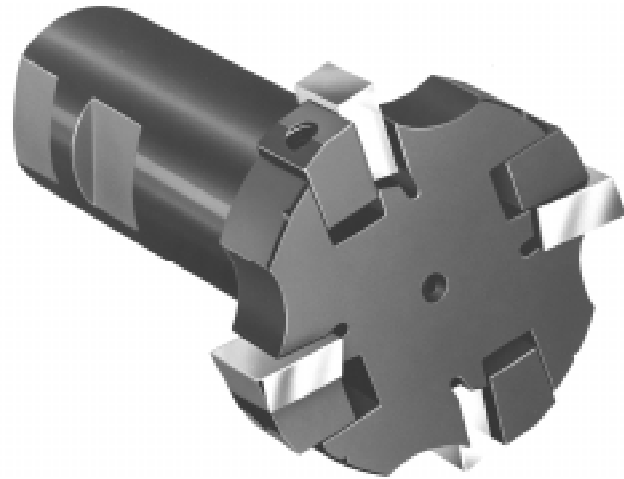
87° PARALLELOGRAMS — POSITIVE RAKE

RUGGED, SIMPLE DESIGN

•
FINEST QUALITY

•
LOWEST PRICE

•
EASY WIDTH ADJUSTMENT
FOR EXACT SLOT SIZE



1) SLOTTING OR STAGGERED CUTTER

With the ring setting gauge for the shank type, inserts may be quickly indexed and precision adjusted to produce any cutting width within the range of the cutter.

2) HALF SIDE MILLING CUTTER

Half side milling may be accomplished by positioning the inserts in a left or right hand orientation.

SHANK LENGTH = 3" OAL MINUS CUTTING BODY WIDTH

| SHANK TYPE | | | | | | | | | |
|-------------|---------------------|--------------------|------------|-------------------|---------------|----------------|--------------------|-------------|------------|
| Cutter dia. | Cutting Width Range | Cutting Body Width | Shank Dia. | Number of Inserts | Use Wedge No. | Use Insert No. | Right or Left Hand | Tool Number | Price Each |
| 2 | .375-.530 | .330 | 3/4 | 4 | W2 | CTA-2 | Right | SM2475R-2 | 215.00 |
| 2 | .485-.765 | .450 | 3/4 | 4 | W4 | CTA-4 | Right | SM2475R-4 | 229.00 |
| 2 | .375-.530 | .330 | 1" | 4 | W2 | CTA-2 | Right | SM2410R-2 | 215.00 |
| 2 | .485-.765 | .450 | 1" | 4 | W4 | CTA-4 | Right | SM2410R-4 | 229.00 |
| 2 | .375-.530 | .330 | 3/4 | 4 | W2 | CTA-2 | Left | SM2475L-2 | 237.00 |
| 2 | .485-.765 | .450 | 3/4 | 4 | W4 | CTA-4 | Left | SM2475L-4 | 251.00 |
| 2 | .375-.530 | .330 | 1" | 4 | W2 | CTA-2 | Left | SM2410L-2 | 237.00 |
| 2 | .485-.765 | .450 | 1" | 4 | W4 | CTA-4 | Left | SM2410L-4 | 251.00 |
| 3 | .375-.530 | .330 | 1" | 6 | W2 | CTA-2 | Right | SM3610R-2 | 286.00 |
| 3 | .485-.765 | .450 | 1" | 6 | W4 | CTA-4 | Right | SM3610R-4 | 313.00 |
| 3 | .720-1.025 | .690 | 1" | 4 | W6 | CTA-6 | Right | SM3410R-6 | 274.00 |
| 3 | .982-1.265 | .950 | 1" | 4 | W8 | CTA-8 | Right | SM3410R-8 | 299.00 |
| 3 | .375-.530 | .330 | 1" | 6 | W2 | CTA-2 | Left | SM3610L-2 | 315.00 |
| 3 | .485-.765 | .450 | 1" | 6 | W4 | CTA-4 | Left | SM3610L-4 | 344.00 |
| 3 | .720-1.025 | .690 | 1" | 4 | W6 | CTA-6 | Left | SM3410L-6 | 314.00 |
| 3 | .982-1.265 | .950 | 1" | 4 | W8 | CTA-8 | Left | SM3410L-8 | 330.00 |

Inserts sold separately.

RING SETTING GAUGE

With the Slot Master[®] Ring Setting Gauge, cutter widths can be precision set for infinitely variable slot widths.

| Tool No. | Shank Diameter | Price Each |
|----------|----------------|------------|
| SMG 750 | 3/4 | 52.90 |
| SMG1000 | 1" | 56.93 |

| CTA 87° Parallelograms all surfaces ground — Positive rake | | | | | | | | | | | | | |
|--|----------------------|------|------|------|------|-----|-----|------|------|-----------|------------|-------------|--|
| CARBIDE INSERTS | | | | | | | | | | | | | |
| Insert Number | Please Specify Radii | | | | | | | | I.C. | Thickness | Price Each | | |
| | 0 | 1/64 | 1/32 | 1/16 | 3/32 | 1/8 | — | C-2 | | | C-5 | TiN* Coated | |
| CTA-2** | 0 | 1/64 | 1/32 | 1/16 | 3/32 | 1/8 | — | .355 | 5/32 | 5.63 | 5.97 | 6.78 | |
| CTA-4 | 0 | 1/64 | 1/32 | 1/16 | 3/32 | 1/8 | — | .460 | 3/16 | 6.92 | 7.15 | 8.13 | |
| CTA-6 | — | — | 1/32 | 1/16 | 3/32 | 1/8 | — | .685 | 3/16 | 9.85 | 10.45 | 13.81 | |
| CTA-8 | — | — | 1/32 | 1/16 | 3/32 | 1/8 | 1/4 | .750 | 3/16 | 11.28 | 12.43 | 14.47 | |

*C-5 & C-6 Grade TiN Coated

**88° Parallelogram

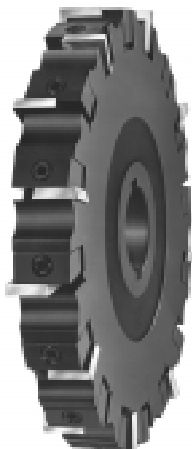
| REPLACEMENT PARTS | | |
|-------------------|-------------------------------|------------|
| Part No. | Description | Price Each |
| W2 | Wedge | 6.33 |
| W4 | Wedge | 6.33 |
| W6 | Wedge | 6.33 |
| W8 | Wedge | 6.33 |
| SMC1 | Screw for W2 & W4 Wedges | 2.00 |
| SMC2 | Screw for W6 & W8 Wedges | 2.00 |
| SS1420-38 | Screw for Ring Setting Gauges | .50 |



♦ SLOT MASTER[®] ADJUSTABLE WIDTH INDEXABLE MILLING CUTTER

87° PARALLELOGRAMS — POSITIVE RAKE

- RUGGED, SIMPLE DESIGN
- FINEST QUALITY • LOWEST PRICE
- EASY WIDTH ADJUSTMENT FOR EXACT SLOT SIZE



4 CUTTERS IN 1 TOOL

1) SLOTTING OR STAGGERED CUTTER

With the magnetic micrometer gauge for the arbor type, inserts may be quickly indexed and precision adjusted to produce any cutting width within the range of the cutter.

2) SLAB MILLING CUTTER

Cutter bodies may be interlocked in pairs to accommodate indexable staggered tooth orientation.

3) STRADDLE MILLING CUTTER

Cutters are double key-wayed to allow multiple cutter set-up of an arbor for straddle milling.

4) HALF SIDE MILLING CUTTER

Half side milling may be accomplished by positioning the inserts in a left or right hand orientation.

ARBOR TYPE

| Cutter Dia. | Cutting Width Range | Cutter Body Width | Arbor Dia. | Number of Inserts | Use Insert No. | Use Wedge No. | Tool Number | Price Each |
|-------------|---------------------|-------------------|------------|-------------------|----------------|---------------|-------------|------------|
| 4 | .375-.530 | .330 | 1-1/4 | 8 | CTA-2 | W2 | SM48122 | 366.00 |
| 4 | .485-.765 | .450 | 1-1/4 | 8 | CTA-4 | W4 | SM48124 | 366.00 |
| 6 | .375-.530 | .330 | 1-1/4 | 12 | CTA-2 | W2 | SM612122 | 451.00 |
| 6 | .485-.765 | .450 | 1-1/4 | 12 | CTA-4 | W4 | SM612124 | 451.00 |
| 6 | .720-1.025 | .690 | 1-1/4 | 12 | CTA-6 | W6 | SM612126 | 467.00 |
| 6 | .982-1.265 | .950 | 1-1/4 | 12 | CTA-8 | W8 | SM612128 | 480.00 |
| 6 | .375-.530 | .330 | 1-1/2 | 12 | CTA-2 | W2 | SM612152 | 450.00 |
| 6 | .485-.765 | .450 | 1-1/2 | 12 | CTA-4 | W4 | SM612154 | 450.00 |
| 6 | .720-1.025 | .690 | 1-1/2 | 12 | CTA-6 | W6 | SM612156 | 467.00 |
| 6 | .982-1.265 | .950 | 1-1/4 | 12 | CTA-8 | W8 | SM612158 | 480.00 |
| 8 | .375-.530 | .330 | 1-1/4 | 16 | CTA-2 | W2 | SM816122 | 560.00 |
| 8 | .485-.765 | .450 | 1-1/4 | 16 | CTA-4 | W4 | SM816124 | 560.00 |
| 8 | .720-1.025 | .690 | 1-1/4 | 16 | CTA-6 | W6 | SM816126 | 574.00 |
| 8 | .982-1.265 | .950 | 1-1/4 | 16 | CTA-8 | W8 | SM816128 | 595.00 |
| 8 | .375-.530 | .330 | 1-1/2 | 16 | CTA-2 | W2 | SM816152 | 560.00 |
| 8 | .485-.765 | .450 | 1-1/2 | 16 | CTA-4 | W4 | SM816154 | 560.00 |
| 8 | .720-1.025 | .690 | 1-1/2 | 16 | CTA-6 | W6 | SM816156 | 573.00 |
| 8 | .982-1.265 | .950 | 1-1/2 | 16 | CTA-8 | W8 | SM816158 | 595.00 |
| 10 | .375-.530 | .330 | 2 | 20 | CTA-2 | W2 | SM102022 | 698.00 |
| 10 | .485-.765 | .450 | 2 | 20 | CTA-4 | W4 | SM102024 | 698.00 |
| 10 | .720-1.025 | .690 | 2 | 20 | CTA-6 | W6 | SM102026 | 725.00 |
| 10 | .982-1.265 | .950 | 2 | 20 | CTA-8 | W8 | SM102028 | 750.00 |
| 12 | .485-.765 | .450 | 2 | 24 | CTA-4 | W4 | SM122424 | 835.00 |
| 12 | .720-1.025 | .690 | 2 | 24 | CTA-6 | W6 | SM122426 | 881.00 |
| 12 | .982-1.265 | .950 | 2 | 24 | CTA-8 | W8 | SM122428 | 913.00 |

Inserts sold separately

REPLACEMENT PARTS LIST

| Part No. | Description | Price Each |
|----------|----------------------------------|------------|
| W2 | Wedge | 6.33 |
| W4 | Wedge | 6.33 |
| W6 | Wedge | 6.33 |
| W8 | Wedge | 6.33 |
| SMC1 | Wedge Screw for W2 and W4 Wedges | 2.00 |
| SMC2 | Wedge Screw for W6 and W8 Wedges | 2.00 |

CTA

87° Parallelograms all surfaces ground — Positive rake



CARBIDE INSERTS

| Insert Number | Please Specify Radii | | | | | | | I.C. | Thickness | Price Each | | |
|---------------|----------------------|------|------|------|------|-----|-----|------|-----------|------------|-------|-------------|
| | 0 | 1/64 | 1/32 | 1/16 | 3/32 | 1/8 | — | | | C-2 | C-5 | TiN* Coated |
| CTA-2** | 0 | 1/64 | 1/32 | 1/16 | 3/32 | 1/8 | — | .355 | 5/32 | 5.63 | 5.97 | 6.78 |
| CTA-4 | 0 | 1/64 | 1/32 | 1/16 | 3/32 | 1/8 | — | .460 | 3/16 | 6.92 | 7.15 | 8.13 |
| CTA-6 | — | — | 1/32 | 1/16 | 3/32 | 1/8 | — | .685 | 3/16 | 9.85 | 10.45 | 13.81 |
| CTA-8 | — | — | 1/32 | 1/16 | 3/32 | 1/8 | 1/4 | .750 | 3/16 | 11.28 | 12.43 | 14.47 |

* C-5 & C-6 Grade TiN Coated

** 88° Parallelogram

MAGNETIC MICROMETER SETTING GAUGE

With the Slot Master[®] Setting Gauge, cutter widths can be precision set for infinitely variable slot widths and inserts can be indexed while the cutter remains on the arbor.

TOOL NO. SMC2000 PRICE EACH — \$333.00



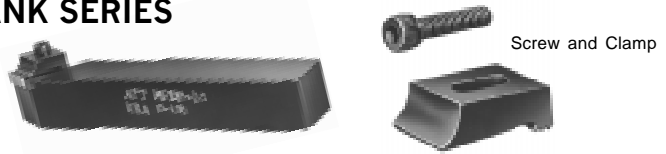


MADE IN U.S.A. — EXCLUSIVELY BY A.P.T.

◆ ADJUSTABLE CLAMP/CHIPBREAKER INDEXABLE TURNING TOOL HOLDERS

SMALL SHANK SERIES

- Adjustable Combination Clamp/Chipbreaker
- No tool like it on the Market!
- Each tool has precision Hardened and ground pockets
- Uses inexpensive 1/4" I.C. triangle inserts
- Replaces old style brazed tip tool bits



| POSITIVE RAKE | | | | | | | |
|------------------------|----------------|--------------------|---------------------|---------------------|------------------------|---------------------------|------------|
| Shank Height and Width | Overall Length | "A" Series 0° Lead | "B" Series 15° Lead | "D" Series 30° Lead | "F" Series Facing Tool | "G" Series 0° Lead Offset | Price Each |
| RIGHT HAND | | | | | | | |
| 3/8 | 2-1/2 | MPAR-6 | MPBR-6 | MPDR-6 | MPFR-6 | MPGR-6 | 24.75 |
| 1/2 | 3-1/2 | MPAR-8 | MPBR-8 | MPDR-8 | MPFR-8 | MPGR-8 | 26.85 |
| 5/8 | 4 | MPAR-10 | MPBR-10 | MPDR-10 | MPFR-10 | MPGR-10 | 29.75 |
| LEFT HAND | | | | | | | |
| 3/8 | 2-1/2 | MPAL-6 | MPBL-6 | MPDL-6 | MPFL-6 | MPGL-6 | 24.75 |
| 1/2 | 3-1/2 | MPAL-8 | MPBL-8 | MPDL-8 | MPFL-8 | MPGL-8 | 26.85 |
| 5/8 | 4 | MPAL-10 | MPBL-10 | MPDL-10 | MPFL-10 | MPGL-10 | 29.75 |

Inserts sold separately.

| NEGATIVE RAKE | | | | | | | |
|------------------------|----------------|--------------------|---------------------|---------------------|------------------------|---------------------------|------------|
| Shank Height and Width | Overall Length | "A" Series 0° Lead | "B" Series 15° Lead | "D" Series 30° Lead | "F" Series Facing Tool | "G" Series 0° Lead Offset | Price Each |
| RIGHT HAND | | | | | | | |
| 3/8 | 2-1/2 | MNAR-6 | MNBR-6 | MNDR-6 | MNFR-6 | MNGR-6 | 24.75 |
| 1/2 | 3-1/2 | MNAR-8 | MNBR-8 | MNDR-8 | MNFR-8 | MNGR-8 | 26.85 |
| 5/8 | 4 | MNAR-10 | MNBR-10 | MNDR-10 | MNFR-10 | MNGR-10 | 29.75 |
| LEFT HAND | | | | | | | |
| 3/8 | 2-1/2 | MNAL-6 | MNBL-6 | MNDL-6 | MNFL-6 | MNGL-6 | 24.75 |
| 1/2 | 3-1/2 | MNAL-8 | MNBL-8 | MNDL-8 | MNFL-8 | MNGL-8 | 26.85 |
| 5/8 | 4 | MNAL-10 | MNBL-10 | MNDL-10 | MNFL-10 | MNGL-10 | 29.75 |

Inserts sold separately.

| TPG | | TNG | | | | |
|-----------------|--------|------|-----------|------------|----------|-------------|
| CARBIDE INSERTS | | | | | | |
| Insert Number | Radius | I.C. | Thickness | Price Each | | |
| | | | | C-2 | C-5 & C6 | TiN Coated* |
| POSITIVE | | | | | | |
| TPG-221 | 1/64 | 1/4 | 1/8 | 4.14 | 4.37 | 5.30 |
| TPG-222 | 1/32 | 1/4 | 1/8 | 4.14 | 4.37 | 5.30 |
| TPG-223 | 3/64 | 1/4 | 1/8 | 4.14 | 4.37 | 5.30 |
| NEGATIVE | | | | | | |
| TNG-221 | 1/64 | 1/4 | 1/8 | 2.62 | 2.81 | 4.04 |
| TNG-222 | 1/32 | 1/4 | 1/8 | 2.62 | 2.81 | 4.04 |

*C-5 & C-6 Grade TiN Coated

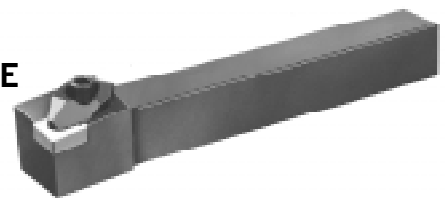
| SETS – 3/8" SHANK | |
|---|---|
| POSITIVE RAKE SET NO. MP38S Includes 1 Piece of Each: MPBR-6, MPDR-6 MPFR-6, MPGR-6 SET PRICE – \$99.00 | NEGATIVE RAKE SET NO. MN38S Includes 1 Piece of Each: MNBR-6, MNDR-6 MNFR-6, MNGR-6 SET PRICE – \$99.00 |

| SETS – 1/2" SHANK | |
|--|--|
| POSITIVE RAKE SET NO. MP12S Includes 1 Piece of Each: MPBR-8, MPDR-8 MPFR-8, MPGR-8 SET PRICE – \$107.00 | NEGATIVE RAKE SET NO. MN12S Includes 1 Piece of Each: MNBR-8, MNDR-8 MNFR-8, MNGR-8 SET PRICE – \$107.00 |

| REPLACEMENT PARTS LIST | | |
|------------------------|-----------------------------------|------------|
| Part Number | Description | Price Each |
| CMD | Combination Clamp and Chipbreaker | 6.21 |
| CS540-12 | Clamp Screw | .35 |

◆ INDEXABLE PROFILE/TRACING TOOL HOLDERS

–5° LEAD ANGLE — NEGATIVE RAKE



| NEGATIVE RAKE | | | | | | |
|---------------|-------------|----------------|-------------|-------------|------------|------------|
| Shank Height | Shank Width | Overall Length | Insert I.C. | Tool Number | | Price Each |
| | | | | Left Hand | Right Hand | |
| 3/4 | 3/4 | 6 | 1/2 | TR80L-12 | TR80R-12 | 33.00 |
| 1 | 1 | 6 | 1/2 | TR80L-16 | TR80R-16 | 37.50 |
| 1 | 1 | 6 | 3/4 | TR80L-16A | TR80R-16A | 39.50 |
| 1-1/4 | 1-1/4 | 7 | 3/4 | TR80L-20 | TR80R-20 | 42.00 |
| 1-1/4 | 1 | 6 | 1/2 | TR80L-85 | TR80R-85 | 42.00 |
| 1-1/4 | 1 | 6 | 3/4 | TR80L-85A | TR80R-85A | 42.00 |
| 1-1/2 | 1 | 7 | 3/4 | TR80L-86 | TR80R-86 | 44.00 |

Inserts sold separately.

| CNMP | | CNMG | | | |
|-----------------|--------|------|-----------|------------|-------------|
| CARBIDE INSERTS | | | | | |
| Insert Number | Radius | I.C. | Thickness | Price Each | |
| | | | | C-5 & C6 | TiN Coated* |
| CNMG-431 | 1/64 | 1/2 | 3/16 | 3.81 | 4.35 |
| CNMP-431 | 1/64 | 1/2 | 3/16 | 4.70 | 5.40 |
| CNMG-432 | 1/32 | 1/2 | 3/16 | 3.81 | 4.35 |
| CNMP-432 | 1/32 | 1/2 | 3/16 | 4.70 | 5.40 |
| CNMP-642 | 1/32 | 3/4 | 1/4 | 10.45 | 12.02 |
| CNMG-643 | 3/64 | 3/4 | 1/4 | 8.24 | 10.83 |
| CNMP-643 | 3/64 | 3/4 | 1/4 | 10.45 | 12.02 |
| CNMG-644 | 1/16 | 3/4 | 1/4 | 8.24 | 10.83 |

| REPLACEMENT PARTS LIST | | |
|------------------------|--------------------------|------------|
| Part Number | Description | Price Each |
| TRC-1 | 1/2 I.C. Hold Down Clamp | 7.18 |
| CS1032-58 | Screw for TRC-1 Clamp | .50 |
| TRC-2 | 3/4 I.C. Hold Down Clamp | 10.06 |
| CS1428-78 | Screw for TRC-2 Clamp | .35 |

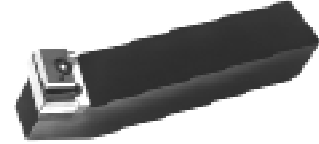
*C-5 & C-6 Grade TiN Coated



ADJUSTABLE CLAMP/CHIPBREAKER INDEXABLE TURNING TOOL HOLDERS

LARGE SHANK SERIES

- Adjustable chipbreaker eliminates stocking various sizes
- Precision hardened and ground pockets
- Regrind inserts at substantial savings
- Tools are easily repaired by simply replacing the cartridge
- Uses standard 3/8" and 1/2" I.C. Triangle inserts



| A Overall Length | B Shank Width | C Shank Height | Insert I.C. | POSITIVE RAKE | | NEGATIVE RAKE | | Price Each | |
|------------------------|---------------------|----------------------|----------------|------------------------------|----------|------------------------------|----------|---------------|----------------------------------|
| | | | | "A" Series 0° Lead Angle | | "A" Series 0° Lead Angle | | | |
| | | | | Right | Left | Right | Left | | |
| 4-1/2 | 3/4 | 3/4 | 3/8 | PTAR-12 | PTAL-12 | NTAR-12 | NTAL-12 | 38.50 | <p>"A" Series 0° Lead Angle</p> |
| 6 | 1 | 1 | 3/8 | PTAR-16 | PTAL-16 | NTAR-16 | NTAL-16 | 45.00 | |
| 6 | 1 | 1 | 1/2 | PTAR-16A | PTAL-16A | NTAR-16A | NTAL-16A | 45.00 | |
| 6 | 1-1/4 | 1-1/4 | 1/2 | PTAR-20 | PTAL-20 | NTAR-20 | NTAL-20 | 49.00 | |
| 6 | 1 | 1-1/4 | 3/8 | PTAR-85 | PTAL-85 | NTAR-85 | NTAL-85 | 49.00 | |
| 6 | 1 | 1-1/4 | 1/2 | PTAR-85A | PTAL-85A | NTAR-85A | NTAL-85A | 49.00 | |
| 6 | 1 | 1-1/2 | 1/2 | - | PTAL-86 | NTAR-86 | NTAL-86 | 52.50 | |
| A Overall Length | B Shank Width | C Shank Height | Insert I.C. | "B" Series 15° Lead Angle | | "B" Series 15° Lead Angle | | Price Each | |
| Right | Left | Right | Left | | | | | | |
| 4-1/2 | 3/4 | 3/4 | 3/8 | PTBR-12 | PTBL-12 | - | NTBL-12 | 38.50 | <p>"B" Series 15° Lead Angle</p> |
| 6 | 1 | 1 | 3/8 | PTBR-16 | PTBL-16 | NTBR-16 | NTBL-16 | 45.00 | |
| 6 | 1 | 1 | 1/2 | PTBR-16A | - | NTBR-16A | NTBL-16A | 45.00 | |
| 6 | 1-1/4 | 1-1/4 | 1/2 | PTBR-20 | PTBL-20 | NTBR-20 | NTBL-20 | 49.00 | |
| 6 | 1 | 1-1/4 | 3/8 | PTBR-85 | PTBL-85 | NTBR-85 | NTBL-85 | 49.00 | |
| 6 | 1 | 1-1/4 | 1/2 | PTBR-85A | PTBL-85A | NTBR-85A | NTBL-85A | 49.00 | |
| 6 | 1 | 1-1/2 | 1/2 | PTBR-86 | PTBL-86 | NTBR-86 | NTBL-86 | 52.50 | |
| A Overall Length | B Shank Width | C Shank Height | Insert I.C. | "D" Series 30° Lead Angle | | "D" Series 30° Lead Angle | | Price Each | |
| Right | Left | Right | Left | | | | | | |
| 4-1/2 | 3/4 | 3/4 | 3/8 | PTDR-12 | PTDL-12 | NTDR-12 | NTDL-12 | 38.50 | <p>"D" Series 30° Lead Angle</p> |
| 6 | 1 | 1 | 3/8 | PTDR-16 | PTDL-16 | NTDR-16 | NTDL-16 | 45.00 | |
| 6 | 1 | 1 | 1/2 | PTDR-16A | PTDL-16A | NTDR-16A | NTDL-16A | 45.00 | |
| 6 | 1-1/4 | 1-1/4 | 1/2 | PTDR-20 | PTDL-20 | NTDR-20 | NTDL-20 | 49.00 | |
| 6 | 1 | 1-1/4 | 3/8 | PTDR-85 | PTDL-85 | NTDR-85 | NTDL-85 | 49.00 | |
| 6 | 1 | 1-1/4 | 1/2 | PTDR-85A | - | NTDR-85A | NTDL-85A | 49.00 | |
| 6 | 1 | 1-1/2 | 1/2 | PTDR-86 | - | NTDR-86 | NTDL-86 | 52.50 | |
| A Overall Length | B Shank Width | C Shank Height | Insert I.C. | "F" Series Facing Tool | | "F" Series Facing Tool | | Price Each | |
| Right | Left | Right | Left | | | | | | |
| 4-1/2 | 3/4 | 3/4 | 3/8 | PTFR-12 | PTFL-12 | NTFR-12 | NTFL-12 | 38.50 | <p>"F" Series Facing Tool</p> |
| 6 | 1 | 1 | 3/8 | PTFR-16 | PTFL-16 | NTFR-16 | NTFL-16 | 45.00 | |
| 6 | 1 | 1 | 1/2 | PTFR-16A | PTFL-16A | NTFR-16A | NTFL-16A | 45.00 | |
| 6 | 1-1/4 | 1-1/4 | 1/2 | PTFR-20 | PTFL-20 | NTFR-20 | NTFL-20 | 49.00 | |
| 6 | 1 | 1-1/4 | 3/8 | PTFR-85 | PTFL-85 | NTFR-85 | NTFL-85 | 49.00 | |
| 6 | 1 | 1-1/4 | 1/2 | PTFR-85A | PTFL-85A | NTFR-85A | NTFL-85A | 49.00 | |
| 6 | 1 | 1-1/2 | 1/2 | PTFR-86 | PTFL-86 | NTFR-86 | NTFL-86 | 52.50 | |
| A Overall Length | B Shank Width | C Shank Height | Insert I.C. | "G" Series 0° Lead Offset | | "G" Series 0° Lead Offset | | Price Each | |
| Right | Left | Right | Left | | | | | | |
| 4-1/2 | 3/4 | 3/4 | 3/8 | PTGR-12 | PTGL-12 | NTGR-12 | NTGL-12 | 38.50 | <p>"G" Series 0° Lead Offset</p> |
| 6 | 1 | 1 | 3/8 | PTGR-16 | PTGL-16 | NTGR-16 | NTGL-16 | 45.00 | |
| 6 | 1 | 1 | 1/2 | PTGR-16A | PTGL-16A | NTGR-16A | NTGL-16A | 45.00 | |
| 6 | 1-1/4 | 1-1/4 | 1/2 | PTGR-20 | PTGL-20 | NTGR-20 | NTGL-20 | 49.00 | |
| 6 | 1 | 1-1/4 | 3/8 | PTGR-85 | PTGL-85 | NTGR-85 | NTGL-85 | 49.00 | |
| 6 | 1 | 1-1/4 | 1/2 | PTGR-85A | PTGL-85A | NTGR-85A | NTGL-85A | 49.00 | |
| 6 | 1 | 1-1/2 | 1/2 | PTGR-86 | PTGL-86 | NTGR-86 | NTGL-86 | 52.50 | |

Inserts sold separately.

REPLACEMENT PARTS LIST

| For 3/8" I.C. Right Hand Holders | | | For 3/8" I.C. Left Hand Holders | | | For 1/2" I.C. Right Hand Holders | | | For 1/2" I.C. Left Hand Holders | | |
|----------------------------------|--------------------|------------|---------------------------------|--------------------|------------|----------------------------------|--------------------|------------|---------------------------------|--------------------|------------|
| Part No. | Description | Price Each | Part No. | Description | Price Each | Part No. | Description | Price Each | Part No. | Description | Price Each |
| CP3R | Cartridge-Positive | 13.23 | CP3L | Cartridge-Positive | 13.23 | CP4R | Cartridge-Positive | 15.24 | CP4L | Cartridge-Positive | 15.24 |
| CN3R | Cartridge-Negative | 13.23 | CN3L | Cartridge-Negative | 13.23 | CN4R | Cartridge-Negative | 15.24 | CN4L | Cartridge-Negative | 15.24 |
| CS540-38 | Cartridge Screw | .35 | CS540-38 | Cartridge Screw | .35 | CS1032-12 | Cartridge Screw | .50 | CS1032-12 | Cartridge Screw | .50 |
| SHIM41 | Positive Shim | 3.75 | SHIM41 | Positive Shim | 3.75 | SHIM37 | Positive Shim | 4.59 | SHIM37 | Positive Shim | 4.59 |
| SHIM48 | Negative Shim | 3.99 | SHIM48 | Negative Shim | 3.99 | SHIM26 | Negative Shim | 4.31 | SHIM26 | Negative Shim | 4.31 |
| CF440-14 | Shim Screw | .35 | CF440-14 | Shim Screw | .35 | CF832-38 | Shim Screw | .35 | CF832-38 | Shim Screw | .35 |
| CB-3 | Chipbreaker | 2.99 | CB-3 | Chipbreaker | 2.99 | CB-4 | Chipbreaker | 4.89 | CB-4 | Chipbreaker | 4.89 |
| CRP-1 | Roll Pin | .35 | CRP-1 | Roll Pin | .35 | CRP-2 | Roll Pin | .35 | CRP-2 | Roll Pin | .35 |
| CR-3 | Clamp | 6.73 | CL-3 | Clamp | 6.73 | CR-4 | Clamp | 7.48 | CL-4 | Clamp | 7.48 |
| CS1032-34 | Clamp Screw | .35 | CS1032-34 | Clamp Screw | .35 | CS1420-1 | Clamp Screw | .35 | CS1420-1 | Clamp Screw | .35 |



MADE IN U.S.A. — EXCLUSIVELY BY A.P.T.

◆ INDEXABLE TURNING TOOL HOLDERS

FOR USE WITH TPGH INSERTS

- Each tool has precision pockets
- Replaces old style brazed tip tool bits
- Uses inexpensive 1/4" and 3/8" I.C. Triangle inserts

LARGE SHANK SERIES



SMALL SHANK SERIES



| A Overall Length | B Shank Size | Insert I.C. | RIGHT HAND | LEFT HAND | Price Each | |
|------------------|---------------|-------------|---------------------------|---------------------------|------------|---------------------------------|
| | | | "A" Series 0° Lead Angle | "A" Series 0° Lead Angle | | |
| 2-1/2 | 3/8 | 1/4 | TPAR-6 | TPAL-6 | 22.50 | "A" Series 0° Lead Angle |
| 3-1/2 | 1/2 | 1/4 | TPAR-8 | TPAL-8 | 24.25 | |
| 4 | 5/8 | 1/4 | TPAR-10 | TPAL-10 | 26.75 | |
| 6 | 3/4 | 3/8 | TPAR-12 | TPAL-12 | 34.75 | |
| 6 | 1 | 3/8 | TPAR-16 | TPAL-16 | 40.50 | |
| 6 | 1-1/4 | 3/8 | TPAR-20 | TPAL-20 | 44.50 | |
| A Overall Length | B Shank Width | Insert I.C. | "B" Series 15° Lead Angle | "B" Series 15° Lead Angle | Price Each | |
| 2-1/2 | 3/8 | 1/4 | TPBR-6 | TPBL-6 | 22.50 | |
| 3-1/2 | 1/2 | 1/4 | TPBR-8 | TPBL-8 | 24.25 | |
| 4 | 5/8 | 1/4 | TPBR-10 | TPBL-10 | 26.75 | |
| 6 | 3/4 | 3/8 | TPBR-12 | TPBL-12 | 34.75 | |
| 6 | 1 | 3/8 | TPBR-16 | TPBL-16 | 40.50 | |
| 6 | 1-1/4 | 3/8 | TPBR-20 | TPBL-20 | 44.50 | |
| A Overall Length | B Shank Width | Insert I.C. | "D" Series 30° Lead Angle | "D" Series 30° Lead Angle | Price Each | |
| 2-1/2 | 3/8 | 1/4 | TPDR-6 | TPDL-6 | 22.50 | |
| 3-1/2 | 1/2 | 1/4 | TPDR-8 | TPDL-8 | 24.25 | |
| 4 | 5/8 | 1/4 | TPDR-10 | TPDL-10 | 26.75 | |
| 6 | 3/4 | 3/8 | TPDR-12 | TPDL-12 | 34.75 | |
| 6 | 1 | 3/8 | TPDR-16 | TPDL-16 | 40.50 | |
| 6 | 1-1/4 | 3/8 | TPDR-20 | TPDL-20 | 44.50 | |
| A Overall Length | B Shank Width | Insert I.C. | "F" Series Facing Tool | "F" Series Facing Tool | Price Each | |
| 2-1/2 | 3/8 | 1/4 | TPFR-6 | TPFL-6 | 22.50 | |
| 3-1/2 | 1/2 | 1/4 | TPFR-8 | TPFL-8 | 24.25 | |
| 4 | 5/8 | 1/4 | TPFR-10 | TPFL-10 | 26.75 | |
| 6 | 3/4 | 3/8 | TPFR-12 | TPFL-12 | 34.75 | |
| 6 | 1 | 3/8 | TPFR-16 | TPFL-16 | 40.50 | |
| 6 | 1-1/4 | 3/8 | TPFR-20 | TPFL-20 | 44.50 | |
| A Overall Length | B Shank Width | Insert I.C. | "G" Series 0° Lead Offset | "G" Series 0° Lead Offset | Price Each | |
| 2-1/2 | 3/8 | 1/4 | TPGR-6 | TPGL-6 | 22.50 | |
| 3-1/2 | 1/2 | 1/4 | TPGR-8 | TPGL-8 | 24.25 | |
| 4 | 5/8 | 1/4 | TPGR-10 | TPGL-10 | 26.75 | |
| 6 | 3/4 | 3/8 | TPGR-12 | TPGL-12 | 34.75 | |
| 6 | 1 | 3/8 | TPGR-16 | TPGL-16 | 40.50 | |
| 6 | 1-1/4 | 3/8 | TPGR-20 | TPGL-20 | 44.50 | |

Inserts sold separately.

CARBIDE INSERTS



TPGH TRIANGLE — Positive rake ground all over with chip groove on one side

| Insert Number | I.C. | Thickness | Radius | Price Each | | |
|---------------|------|-----------|--------|------------|-----------|------------|
| | | | | C-2 | C-5 & C-6 | TiN Coated |
| TPGH-21.50 | 1/4 | 3/32 | 0 | 4.75 | 5.23 | 6.11 |
| TPGH-21.51 | 1/4 | 3/32 | 1/64 | 4.75 | 5.23 | 6.11 |
| TPGH-21.52 | 1/4 | 3/32 | 1/32 | 4.75 | 5.23 | 6.11 |
| TPGH-321 | 3/8 | 1/8 | 1/64 | 5.13 | 5.70 | 6.95 |
| TPGH-322 | 3/8 | 1/8 | 1/32 | 5.13 | 5.70 | 6.95 |

REPLACEMENT PARTS

| Part No. | Description | Price Each |
|-----------|---|------------|
| TF440-195 | Torx® drive flat head screw for 1/4" I.C. | 1.25 |
| TF832-285 | Torx® flat head cap screw for 3/8" I.C. | 1.75 |
| CTW-6 | Torx® Wrench for TF440-235 | 1.95 |
| CTW-10 | Torx® Wrench for TF832-235 | 2.45 |

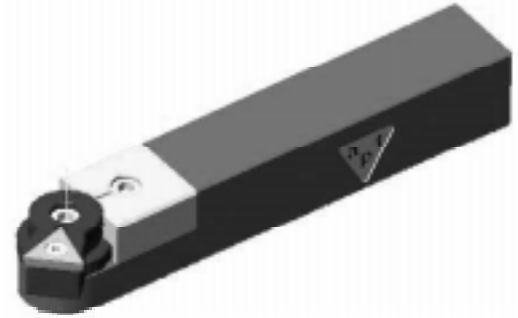


◆ VERSADEx

ADJUSTABLE ANGLE TURNING AND CHAMFERING TOOL

0° TO 180°

- Use full width of insert with no chip interference
- Set at any angle from 0° to 180°
- Allows right hand and left hand cutting
- Tool comes complete with C-5 grade insert, and wrenches



| 6" OAL | | |
|----------|------------|------------|
| Tool No. | Shank Size | Price Each |
| VER12 | 3/4 | 139.00 |
| VER16 | 1 | 149.00 |
| VER20 | 1-1/4 | 165.00 |

| | TPGH | Triangle — Positive rake ground all over with chip groove on one side. | | | | |
|-----------------|-------------|--|-----------|------------|-----------|-------------|
| CARBIDE INSERTS | | | | | | |
| Insert Number | Radius | I.C. | Thickness | Price Each | | |
| | | | | C-2 | C-5 & C-6 | TiN Coated* |
| TPGH-321 | 1/64 | 3/8 | 1/8 | 5.13 | 5.70 | 6.95 |
| TPGH-322 | 1/32 | 3/8 | 1/8 | 5.13 | 5.70 | 6.95 |

*C-5 & C-6 Grade TiN Coated

| REPLACEMENT PARTS LIST | | |
|------------------------|--|------------|
| Part No. | Description | Price Each |
| TF832-285 | Torx® drive flat head screw for insert | 1.75 |
| CTW-10 | Torx® wrench T10 | 2.45 |
| CS1032-34 | Clamp screw | .35 |
| CSW-2 | 5/32 allen wrench for clamp screw | .50 |

◆ MILLDEX

- Mill angles from 5° to 85° with one tool
- Change chamfer angle with a quick adjustment
- Can be held in round tool holder or tool post
- Cutting range from 1/4 to 1-1/4
- Tool comes complete with C5-Grade insert and wrenches



| ADJUSTABLE ANGLE MILLING AND CHAMFERING TOOL | | | | | |
|--|--------------------------|----------------|-----------------------|----------|------------|
| Shank Dia. | Shank Style | Overall Length | Distance Across Flats | Tool No. | Price Each |
| 3/4 | Weldon | 3-3/4 | — | ML750 | 149.00 |
| 3/4 | Round with 4 equal flats | 6 | 5/8 | MLSL750 | 169.00 |
| 1 | Weldon | 3-3/4 | — | ML1000 | 159.00 |
| 1 | Round with 4 equal flats | 6 | 7/8 | MLSL1000 | 189.00 |
| 1-1/4 | Weldon | 3-3/4 | — | ML1250 | 179.00 |
| 1-1/4 | Round with 4 equal flats | 6 | 1-1/8 | MLSL1250 | 209.00 |
| R8 | R8 | 5-7/8 | — | MLR8 | 199.00 |

*C-5 & C-6 Grade TiN Coated

| | TPGH | Triangle — Positive rake ground all over with chip groove on one side. | | | | |
|-----------------|-------------|--|-----------|------------|-----------|-------------|
| CARBIDE INSERTS | | | | | | |
| Insert Number | Radius | I.C. | Thickness | Price Each | | |
| | | | | C-2 | C-5 & C-6 | TiN Coated* |
| TPGH-321 | 1/64 | 3/8 | 1/8 | 5.13 | 5.70 | 6.95 |
| TPGH-322 | 1/32 | 3/8 | 1/8 | 5.13 | 5.70 | 6.95 |

*C-5 & C-6 Grade TiN Coated

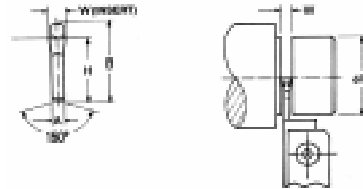
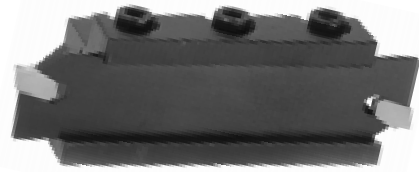
| REPLACEMENT PARTS LIST | | |
|------------------------|---|------------|
| Part No. | Description | Price Each |
| TF832-285 | Torx® drive flat head screw for 3/8" I.C. | 1.75 |
| CTW-10 | Torx® wrench T10 | 2.45 |
| CS832-12 | Clamp screw | .50 |
| CSW | 9/64 allen wrench for clamp screw | .50 |



MADE IN U.S.A.

◆ CUT-OFF AND GROOVING TOOL SYSTEM

Interchangeable with other brands and other major cut-off and tool system.



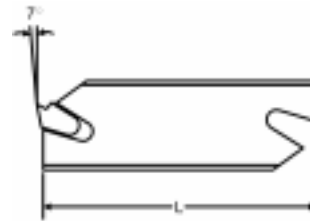
| CARBIDE INSERTS | | | | | |
|-----------------|---------------|--|------------|---------|------------|
| Width | Insert Number | | Price Each | | |
| | 0° Face Angle | | C-2 | C-5/C-6 | TiN Coated |
| NEUTRAL | | | | | |
| .087 | ANN-2 | | 5.35 | 4.95 | 6.05 |
| .094 | ANN-2.4 | | 5.35 | 4.95 | 6.05 |
| .120 | ANN-3 | | 5.35 | 4.95 | 6.05 |
| .160 | ANN-4 | | 5.94 | 5.50 | 6.70 |
| .187 | ANN-4.8 | | 6.43 | 5.95 | 7.30 |
| .200 | ANN-5 | | 6.43 | 5.95 | 7.30 |
| .250 | ANN-6 | | 7.02 | 6.50 | 7.80 |
| .315 | ANN-8 | | 9.45 | 10.60 | 11.23 |
| .375 | ANN-9 | | 10.75 | 12.50 | 14.90 |

| REPLACEMENT PARTS LIST | | |
|------------------------|--------------------------------|------------|
| Part No. | Description | Price Each |
| GEX1 | Insert Extractor for .087-.250 | 3.13 |
| GEX2 | Insert Extractor for .315-.375 | 3.13 |

| CARBIDE INSERTS | | | | | |
|-------------------|---------------|---------------|------------|---------|------------|
| Width | Insert Number | | Price Each | | |
| | 3° Face Angle | 8° Face Angle | C-2 | C-5/C-6 | TiN Coated |
| RIGHT HAND | | | | | |
| .087 | ANR2-3 | ANR2-8 | 6.25 | 6.25 | 7.30 |
| .094 | ANR2.4-3 | ANR2.4-8 | 5.45 | 5.45 | 6.55 |
| .120 | ANR3-3 | ANR3-8 | 5.45 | 5.45 | 6.55 |
| .160 | ANR4-3 | ANR4-8 | 6.05 | 6.05 | 7.25 |
| .187 | ANR4.8-3 | ANR4.8-8 | 6.50 | 6.50 | 7.85 |
| .200 | ANR5-3 | ANR5-8 | 6.50 | 6.50 | 7.85 |
| .250 | ANR6-3 | ANR6-8 | 7.15 | 7.15 | 8.65 |

| CARBIDE INSERTS | | | | | |
|------------------|---------------|---------------|------------|---------|------------|
| Width | Insert Number | | Price Each | | |
| | 3° Face Angle | 8° Face Angle | C-2 | C-5/C-6 | TiN Coated |
| LEFT HAND | | | | | |
| .087 | ANL2-3 | ANL2-8 | 6.25 | 6.25 | 7.80 |
| .094 | ANL2.4-3 | ANL2.4-8 | 5.45 | 5.45 | 6.55 |
| .120 | ANL3-3 | ANL3-8 | 5.45 | 5.45 | 6.55 |
| .160 | ANL4-3 | ANL4-8 | 6.05 | 6.05 | 7.25 |
| .187 | ANL4.8-3 | ANL4.8-8 | 6.50 | 6.50 | 7.85 |
| .200 | ANL5-3 | ANL5-8 | 6.50 | 6.50 | 7.85 |
| .250 | ANL6-3 | ANL6-8 | 7.15 | 7.15 | 8.65 |

NOTE: All Tin Coated inserts are C5/C6 grade unless otherwise specified



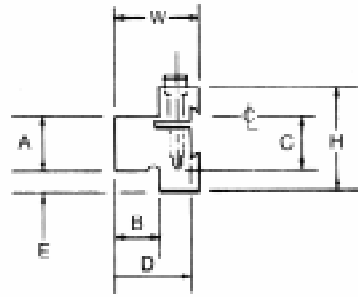
Insert extractor supplied with each blade.

| CUT-OFF AND GROOVING BLADES | | | | | | | |
|-----------------------------|--------|-------|--------|-------|--------------|-------------|------------|
| Dimensions | | | | | Insert Width | Tool Number | Price Each |
| A | L | H | B | D-Max | | | |
| 1/16 | 3-3/8 | 39/64 | 3/4 | 1-1/2 | .087 & .094 | GIH19-2 | 47.63 |
| 1/16 | 4-5/16 | 53/64 | 1-1/32 | 2 | .087 & .094 | GIH26-2 | 53.73 |
| 3/32 | 4-5/16 | 53/64 | 1-1/32 | 3 | .120 | GIH26-3 | 55.75 |
| 1/8 | 4-5/16 | 53/64 | 1-1/32 | 3 | .160 | GIH26-4 | 57.13 |
| 5/32 | 4-5/16 | 53/64 | 1-1/32 | 3 | .187 & 200 | GIH26-5 | 60.43 |
| 13/64 | 4-5/16 | 53/64 | 1-1/32 | 3 | .250 | GIH26-6 | 60.43 |
| 1/16* | 5-7/8 | 63/64 | 1-1/4 | 2 | .087 & .094 | GIH32-2 | 63.02 |
| 3/32 | 5-7/8 | 63/64 | 1-1/4 | 4 | .120 | GIH32-3 | 63.02 |
| 1/8 | 5-7/8 | 63/64 | 1-1/4 | 4 | .160 | GIH32-4 | 64.48 |
| 5/32 | 5-7/8 | 63/64 | 1-1/4 | 5 | .187 & .200 | GIH32-5 | 67.39 |
| 13/64 | 5-7/8 | 63/64 | 1-1/4 | 5 | .250 | GIH32-6 | 72.50 |
| 17/64 | 5-7/8 | 63/64 | 1-1/4 | 5.5 | .315 | GIH32-8 | 120.96 |
| 5/16 | 5-7/8 | 63/64 | 1-1/4 | 5.5 | .375 | GIH32-9 | 120.96 |

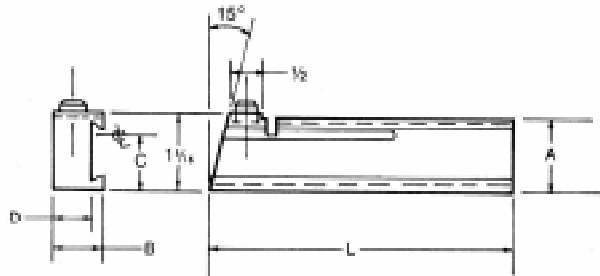
* 1/16 at front end only for clearance. Overall thickness is 3/32.



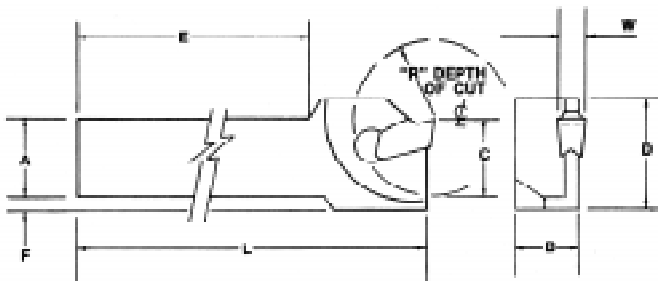
◆ CUT-OFF AND GROOVING TOOL SYSTEM



| Dimensions | | | | | | | | Use Blade Number | Tool Number | Price Each |
|------------|-------|-------|---------|-------|---------|--------|---------|---------------------|-------------|------------|
| A | B | C | D | E | H | W | L | | | |
| 5/8 | 5/8 | 5/8 | 31/32 | 11/64 | 1-3/16 | 1-1/16 | 3 | GIH19-2 | GTBN16-2 | 107.29 |
| 5/8 | 5/8 | 5/8 | 1-1/32 | 7/16 | 1-1/2 | 1-3/16 | 3 | GIH26-2,3,4,5,6 | GTBN16-5 | 108.43 |
| 3/4 | 3/4 | 3/4 | 1-1/8 | 21/64 | 1-17/32 | 1-5/16 | 3-3/8 | GIH26-2,3,4,5,6 | GTBN19-5 | 117.50 |
| 3/4 | 3/4 | 3/4 | 1-1/8 | 1/2 | 1-7/8 | 1-3/8 | 4 | GIH32-2,3,4,5,6,8,9 | GTBN19-6 | 117.50 |
| 1 | 1 | 1 | 1-13/32 | 5/16 | 1-7/8 | 1-5/8 | 4-3/8 | GIH32-2,3,4,5,6,8,9 | GTBN25-6 | 119.00 |
| 1-1/4 | 1-1/4 | 1-1/4 | 1-11/16 | 1/8 | 1-7/8 | 1-7/8 | 4-11/16 | GIH32-2,3,4,5,6,8,9 | GTBN32-6 | 121.77 |



| Dimensions | | | | | Use Blade Number | Tool Number | Price Each |
|------------|-------|-----|-------|-------|------------------|-------------|------------|
| A | B | C | D | L | | | |
| 1 | 3/4 | 3/4 | 43/64 | 4 | GIH19-2 | GTBR19-2 | 69.00 |
| 1 | 3/4 | 3/4 | 43/64 | 4 | GIH19-2 | GTBL19-2 | 69.00 |
| 1-1/4 | 25/32 | 1 | 19/32 | 4-3/4 | GIH26-2,3,4,5,6 | GTBR25-6 | 69.00 |
| 1-1/4 | 25/32 | 1 | 19/32 | 4-3/4 | GIH26-2,3,4,5,6 | GTBL25-6 | 69.00 |



| Dimensions | | | | | | | | | | Insert Number | Tool Number | | Price Each |
|------------|-----|-------|-----|---------|-------|--------|-------|------------|---------------|---------------|-------------|-------|------------|
| A | B | C | D | E | F | L | R | Width | Left Hand | | Right Hand | | |
| 3/8 | 3/8 | 3/8 | 3/4 | 2-3/4 | 3/16 | 3-3/8 | 1/2 | .087, .094 | ANN/R/L-2,2.4 | GTHL10-2 | GTHR10-2 | 53.78 | |
| 12mm | 3/8 | 15/32 | 3/4 | 3-37/64 | 5/32 | 4-5/16 | 19/32 | .087, .094 | ANN/R/L-2,2.4 | GTHL12-2 | GTHR12-2 | 58.75 | |
| 1/2 | 3/8 | 1/2 | 3/4 | 3-37/64 | 5/32 | 4-5/16 | 19/32 | .087, .094 | ANN/R/L-2,2.4 | GTHL12.7-2 | GTHR12.7-2 | 61.54 | |
| 1/2 | 3/8 | 1/2 | 3/4 | 3-37/64 | 5/32 | 4-5/16 | 5/8 | .120 | ANN/R/L-3 | GTHL12.7-3 | GTHR12.7-3 | 61.54 | |
| 5/8 | 3/8 | 5/8 | 3/4 | 3-37/64 | 0 | 4-5/16 | 19/32 | .087, .094 | ANN/R/L-2,2.4 | GTHL16-2 | GTHR16-2 | 62.86 | |
| 5/8 | 1/2 | 5/8 | 1 | 3-29/64 | 11/64 | 4-5/16 | 5/8 | .120 | ANN/R/L-3 | GTHL16-3 | GTHR16-3 | 65.93 | |
| 5/8 | 1/2 | 5/8 | 1 | 3-29/64 | 11/64 | 4-5/16 | 5/8 | .160 | ANN/R/L-4 | GTHL16-4 | GTHR16-4 | 69.66 | |
| 3/4 | 1/2 | 3/4 | 1 | 3-29/64 | 0 | 4-5/16 | 5/8 | .087, .094 | ANN/R/L-2,2.4 | GTHL19-2 | GTHR19-2 | 70.63 | |
| 3/4 | 1/2 | 3/4 | 1 | 3-29/64 | 0 | 4-5/16 | 5/8 | .120 | ANN/R/L-3 | GTHL19-3 | GTHR19-3 | 70.63 | |
| 3/4 | 1/2 | 3/4 | 1 | 3-29/64 | 1/16 | 4-5/16 | 3/4 | .160 | ANN/R/L-4 | GTHL19-4 | GTHR19-4 | 75.44 | |
| 3/4 | 1/2 | 3/4 | 1 | 4-7/16 | 3/64 | 4-5/16 | 3/4 | .187, .200 | ANN/R/L-4,8.5 | GTHL19-5 | GTHR19-5 | 76.74 | |

SQUARE TOOL BITS

GROUND — BOTH ENDS BEVELED 10°



- LIST NO. 700 — HIGH SPEED STEEL
- LIST NO. 700C — 5% COBALT
- LIST NO. 700SC — 8% SUPER COBALT

STANDARD, LONG AND EXTRA LONG LENGTHS

| Size | Overall Length | Price Each | | |
|------|----------------|------------|-----------|------------|
| | | List 700 | List 700C | List 700SC |
| 1/8 | 2-1/2 | 3.70 | 5.40 | — |
| 3/16 | 2-1/2 | 3.13 | 4.25 | 5.60 |
| 1/4 | 2-1/2 | 3.24 | 4.80 | 6.90 |
| 1/4 | 4 | 4.99 | 7.55 | — |
| 1/4 | 6 | 7.49 | 11.31 | — |
| 1/4 | 8 | 9.95 | 15.02 | — |
| 5/16 | 2-1/2 | 3.71 | 5.60 | 8.80 |
| 5/16 | 4 | 6.34 | 9.62 | — |
| 5/16 | 6 | 8.99 | 13.57 | — |
| 3/8 | 3 | 4.93 | 7.60 | 11.00 |
| 3/8 | 4 | 6.92 | 10.75 | — |
| 3/8 | 6 | 9.95 | 15.02 | — |
| 3/8 | 8 | 13.95 | 21.06 | — |
| 7/16 | 3-1/2 | 7.20 | 11.85 | 14.75 |

| Size | Overall Length | Price Each | | |
|-------|----------------|------------|-----------|------------|
| | | List 700 | List 700C | List 700SC |
| 1/2 | 4 | 10.40 | 16.90 | 20.80 |
| 1/2 | 6 | 15.15 | 23.07 | — |
| 1/2 | 8 | 20.80 | 31.41 | — |
| 5/8 | 4 | 15.39 | — | — |
| 5/8 | 4-1/2 | 17.22 | 26.00 | 34.00 |
| 5/8 | 8 | 30.78 | 46.48 | — |
| 3/4 | 5 | 24.30 | 41.00 | 51.00 |
| 3/4 | 8 | 28.00 | — | — |
| 7/8 | 6 | 39.92 | 65.90 | 81.50 |
| 1 | 7 | 58.39 | 98.00 | — |
| 1-1/8 | 8 | 89.31 | — | — |
| 1-1/4 | 7 | 116.24 | 169.00 | — |
| 1-1/4 | 9 | — | — | 209.99 |
| 1-1/2 | 10 | 220.00 | — | — |

◆ LATHE TURNING TOOL HOLDERS

FOR STANDARD SQUARE TOOL BITS



Each complete with wrench

| FOR SQUARE TOOL BITS | | | | | | | |
|----------------------|--------------|---------------|---------------|-------------------------|---------------------|--------------------|------------|
| Tool Bit Size | Holder Width | Holder Height | Holder Length | Tool No. Straight Shank | Tool No. Right Hand | Tool No. Left Hand | Price Each |
| 1/8 | 5/16 | 1/2 | 4 | TH000S | TH000R | TH000L | 17.75 |
| 3/16 | 5/16 | 3/4 | 4-1/2 | TH00S | TH00R | TH00L | 18.50 |
| 1/4 | 3/8 | 7/8 | 5 | TH0S | TH0R | TH0L | 19.75 |
| 5/16 | 1/2 | 1-1/8 | 6 | TH1S | TH1R | TH1L | 22.00 |
| 3/8 | 5/8 | 1-3/8 | 7 | TH2S | TH2R | TH2L | 24.75 |
| 7/16 | 3/4 | 1-5/8 | 8 | TH3S | TH3R | TH3L | 29.50 |
| 1/2 | 7/8 | 1-3/4 | 9 | TH4S | TH4R | TH4L | 38.00 |
| 5/8 | 1 | 2 | 11 | TH5S | TH5R | TH5L | 65.00 |
| 3/4 | 1-1/4 | 2-1/4 | 13 | TH6S | TH6R | TH6L | 85.00 |

| FOR CARBIDE TIPPED TOOL BITS | | | | | | | |
|------------------------------|--------------|---------------|---------------|-------------------------|---------------------|--------------------|------------|
| Tool Bit Size | Holder Width | Holder Height | Holder Length | Tool No. Straight Shank | Tool No. Right Hand | Tool No. Left Hand | Price Each |
| 1/4 | 3/8 | 15/16 | 6 | THT0S | THT0R | THT0L | 22.00 |
| 5/16 | 1/2 | 1-1/4 | 7 | THT1S | THT1R | THT1L | 25.00 |
| 3/8 | 5/8 | 1-1/2 | 8 | THT2S | THT2R | THT2L | 29.00 |
| 7/16 | 3/4 | 1-3/4 | 9 | THT3S | THT3R | THT3L | 34.00 |
| 1/2 | 7/8 | 1-7/8 | 10 | THT4S | THT4R | THT4L | 42.00 |
| 5/8 | 1 | 2-1/8 | 12 | THT5S | THT5R | THT5L | 74.00 |

HIGH SPEED STEEL AND COBALT

RECTANGULAR TOOL BITS



- LIST NO. 701 — HIGH SPEED STEEL
- LIST NO. 701C — COBALT

STANDARD AND LONG LENGTHS

| Size | Overall Length | Price Each | | Size | Overall Length | Price Each | | Size | Overall Length | Price Each | |
|--------------|----------------|------------|-----------|-----------|----------------|------------|-----------|-------------|----------------|------------|-----------|
| | | List 701 | List 701C | | | List 701 | List 701C | | | List 701 | List 701C |
| 3/16 x 2-1/2 | 6 | — | 9.79 | 5/16 x 1 | 6 | — | 13.75 | 1/2 x 1-1/4 | 7 | 43.00 | — |
| 1/4 x 3/8 | 3 | 6.56 | — | 3/8 x 1/2 | 4 | 10.10 | 15.50 | 5/8 x 3/4 | 5 | 25.00 | 39.00 |
| 1/4 x 1/2 | 4 | 8.04 | 12.00 | 3/8 x 5/8 | 4 | 12.50 | 16.75 | 5/8 x 7/8 | 6 | 35.00 | 53.70 |
| 1/4 x 3/4 | 5 | 12.86 | — | 3/8 x 3/4 | 5 | 14.58 | 21.90 | 5/8 x 1 | 7 | 43.00 | 66.40 |
| 1/4 x 1 | 6 | 20.26 | 24.00 | 1/2 x 3/4 | 4 | 15.94 | 22.90 | 5/8 x 1-1/4 | 7 | 52.00 | — |
| 5/16 x 7/16 | 3 | 7.95 | 12.15 | 1/2 x 3/4 | 6 | 24.95 | 34.20 | 3/4 x 1 | 6 | 45.25 | — |
| 5/16 x 5/8 | 4-1/2 | 9.95 | — | 1/2 x 1 | 6 | 36.00 | 54.00 | 3/4 x 1-1/4 | 7 | 65.00 | — |
| 5/16 x 1 | 6 | 11.95 | — | | | | | | | | |

GROUND CUT-OFF BLADES

- LIST NO. 702 — HIGH SPEED STEEL
- LIST NO. 702C — SUPER COBALT

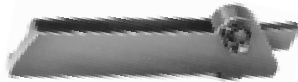


| Size | Overall Length | Price Each | |
|--------------|----------------|-------------------------|----------------------------|
| | | High Speed List No. 702 | Super Cobalt List No. 702C |
| 1/16 x 11/16 | 5 | 18.80 | — |
| 1/16 x 13/16 | 6 | 19.90 | 29.90 |
| 5/64 x 1/2 | 4-1/2 | 16.99 | — |
| 3/32 x 3/16 | 6 | 15.99 | 25.99 |
| 3/32 x 1/2 | 4-1/2 | 14.30 | 24.60 |
| 3/32 x 5/8 | 5 | 16.20 | 27.54 |
| 3/32 x 13/16 | 6 | 19.90 | 29.90 |
| 3/32 x 1 | 6-1/2 | 21.90 | 30.90 |
| 1/8 x 3/4 | 6 | 20.70 | 26.40 |
| 1/8 x 13/16 | 6 | 22.90 | — |

| Size | Overall Length | Price Each | |
|--------------|----------------|-------------------------|----------------------------|
| | | High Speed List No. 702 | Super Cobalt List No. 702C |
| 1/8 x 7/8 | 6 | 24.30 | 32.00 |
| 1/8 x 1 | 6-1/2 | 25.90 | — |
| 5/32 x 13/16 | 6 | 26.00 | 36.00 |
| 3/16 x 13/16 | 8 | 24.30 | — |
| 3/16 x 1 | 8 | 29.00 | 41.25 |
| 3/16 x 1-1/8 | 7 | — | 46.50 |
| 1/4 x 13/16 | 6 | 36.00 | — |
| 1/4 x 1-1/8 | 7 | — | 50.25 |
| 1/4 x 1-1/4 | 7 | 38.50 | 54.00 |
| 1/4 x 1-3/8 | 7 | — | 58.00 |

CUT-OFF BLADE TOOL HOLDERS

Complete with wrench



| Cut-Off Blade Size | Holder Width | Holder Height | Holder Length | Tool No. Straight Shank | Tool No. Right Hand | Tool No. Left Hand | Price Each |
|--------------------|--------------|---------------|---------------|-------------------------|---------------------|--------------------|------------|
| 3/32 x 1/2 | 5/16 | 3/4 | 4-1/2 | TH29S | TH29R | TH29L | 14.90 |
| 3/32 x 5/8 | 3/8 | 7/8 | 5 | TH30S | TH30R | TH30L | 17.75 |
| 1/8 x 3/4 | 1/2 | 1-1/8 | 6 | TH31S | TH31R | TH31L | 22.00 |
| 1/8 x 7/8 | 5/8 | 1-3/8 | 7 | TH32S | TH32R | TH32L | 26.50 |
| 3/16 x 1 | 3/4 | 1-5/8 | 8 | TH33S | TH33R | TH33L | 36.00 |
| 3/16 x 1-1/8 | 7/8 | 1-3/4 | 9 | TH34S | TH34R | TH34L | 49.00 |
| 1/4 x 1-3/8 | 1 | 2 | 10 | TH35S | TH35R | TH35L | 65.00 |

ROUND TOOL BITS

- LIST NO. 704 — HIGH SPEED STEEL
- LIST NO. 704C — SUPER COBALT



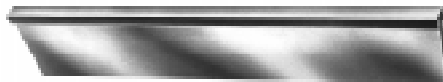
| Size | Overall Length | Price Each | |
|------|----------------|--------------|---------------|
| | | List No. 704 | List No. 704C |
| 1/8 | 2-3/4 | 4.25 | 7.65 |
| 5/32 | 3-1/8 | 3.24 | — |
| 3/16 | 3-1/2 | 5.00 | 9.00 |
| 1/4 | 4 | 7.60 | 13.68 |
| 5/16 | 4-1/2 | 9.80 | 17.64 |
| 3/8 | 5 | 12.00 | 21.75 |
| 7/16 | 5-1/2 | 15.00 | 27.00 |
| 1/2 | 6 | 18.00 | 32.40 |
| 9/16 | 6 | 23.00 | 41.40 |
| 5/8 | 6 | 28.00 | 50.40 |
| 3/4 | 6 | 56.00 | 100.80 |

HIGH SPEED STEEL AND SUPER COBALT

"P" TYPE CUT-OFF BLADES

T-SHAPED

- LIST NO. 703 — HIGH SPEED STEEL
- LIST NO. 703C — SUPER COBALT



This style blade produces a chip narrower than the blade itself and is suited for cutting off, grooving and similar operations. Increased clearance angles on each side of the blade reduces friction and the narrow design conserves material being cut and reduces the heat generated when cutting.

| Width | Height | Overall Length | Blade No. | Price Each | |
|-------|--------|----------------|-----------|--------------|---------------|
| | | | | List No. 703 | List No. 703C |
| .040 | 1/2 | 3-1/2 | P1N | 15.30 | 19.50 |
| 1/16 | 1/2 | 4-1/2 | P1 | 14.70 | 19.90 |
| 5/64 | 1/2 | 4-1/2 | P2N | 16.16 | 21.00 |
| 3/32 | 1/2 | 4-1/2 | P2 | 16.16 | 21.00 |
| 1/8 | 1/2 | 4-1/2 | P3S | 16.70 | 21.50 |
| 3/32 | 11/16 | 5 | P3N | 17.10 | 21.50 |
| 1/8 | 11/16 | 5 | P3 | 17.30 | 23.00 |
| 5/32 | 11/16 | 5 | P4 | 19.85 | 27.50 |
| 3/16 | 11/16 | 5 | P5S | 22.00 | 32.00 |
| 1/8 | 3/4 | 5 | P3W | 17.30 | 32.00 |

| Width | Height | Overall Length | Blade No. | Price Each | |
|-------|--------|----------------|-----------|--------------|---------------|
| | | | | List No. 703 | List No. 703C |
| 5/32 | 3/4 | 5 | P4W | 22.00 | 32.00 |
| 3/16 | 3/4 | 5 | P5W | 24.14 | 36.00 |
| 1/8 | 7/8 | 6 | P5X | 21.22 | 32.00 |
| 5/32 | 7/8 | 6 | P5N | 24.86 | 36.00 |
| 3/16 | 7/8 | 6 | P5 | 24.55 | 36.00 |
| 1/4 | 7/8 | 6 | P6 | 29.48 | 44.00 |
| 1/8 | 1-1/8 | 6-1/2 | P8X | 36.75 | 53.50 |
| 5/32 | 1-1/8 | 6-1/2 | P8N | 41.00 | 55.00 |
| 3/16 | 1-1/8 | 6-1/2 | P8 | 36.75 | 53.50 |
| 1/4 | 1-1/8 | 6-1/2 | P9 | 41.00 | 55.00 |

◆ CARBIDE TIPPED TOOL BITS



For turning on the outside of the part.

Please specify grade when ordering C-2 Cast Iron and nonferrous materials or C-5/C-6 Steel and ferrous materials.



For turning on the outside of the part.

AR AND AL STYLES

BR AND BL STYLES

STRAIGHT TURNING TOOLS

| Square Shank | Overall Length | Tool No. Right Hand | Tool No. Left Hand | Price Each |
|--------------|----------------|---------------------|--------------------|------------|
| 1/4 | 2 | AR4 | AL4 | 4.15 |
| 5/16 | 2-1/4 | AR5 | AL5 | 4.40 |
| 3/8 | 2-1/2 | AR6 | AL6 | 4.40 |
| 7/16 | 3 | AR7 | AL7 | 4.50 |
| 1/2 | 3-1/2 | AR8 | AL8 | 4.87 |
| 5/8 | 4 | AR10 | AL10 | 6.95 |
| 3/4 | 4-1/2 | AR12 | AL12 | 8.90 |
| 1 | 7 | AR16 | AL16 | 15.75 |

15° LEAD ANGLE TURNING TOOLS

| Square Shank | Overall Length | Tool No. Right Hand | Tool No. Left Hand | Price Each |
|--------------|----------------|---------------------|--------------------|------------|
| 1/4 | 2 | BR4 | BL4 | 4.15 |
| 5/16 | 2-1/4 | BR5 | BL5 | 4.40 |
| 3/8 | 2-1/2 | BR6 | BL6 | 4.40 |
| 7/16 | 3 | BR7 | BL7 | 4.50 |
| 1/2 | 3-1/2 | BR8 | BL8 | 5.20 |
| 5/8 | 4 | BR10 | BL10 | 6.95 |
| 3/4 | 4-1/2 | BR12 | BL12 | 9.25 |
| 1 | 7 | BR16 | BL16 | 15.50 |



D STYLE

80° INCLUDED ANGLE

For chamfering corners on the outside or inside of the part.



C STYLE

For chamfering or special designs.



E STYLE

60° INCLUDED ANGLE

For threading on the outside of the part.

POINTED NOSE TOOLS

| Square Shank | Overall Length | Tool No. | Price Each |
|--------------|----------------|----------|------------|
| 1/4 | 2 | D4 | 4.07 |
| 5/16 | 2-1/4 | D5 | 4.30 |
| 3/8 | 2-1/2 | D6 | 4.30 |
| 7/16 | 3 | D7 | 4.45 |
| 1/2 | 3-1/2 | D8 | 5.20 |
| 5/8 | 4 | D10 | 7.14 |
| 3/4 | 4-1/2 | D12 | 9.55 |
| 1 | 7 | D16 | 14.35 |

SQUARE NOSE TOOLS

| Square Shank | Overall Length | Tool No. | Price Each |
|--------------|----------------|----------|------------|
| 1/4 | 2 | C4 | 4.07 |
| 5/16 | 2-1/4 | C5 | 4.30 |
| 3/8 | 2-1/2 | C6 | 4.40 |
| 7/16 | 3 | C7 | 4.60 |
| 1/2 | 3-1/2 | C8 | 5.55 |
| 5/8 | 4 | C10 | 7.70 |
| 3/4 | 4-1/2 | C12 | 10.90 |
| 1 | 7 | C16 | 18.00 |

THREADING TOOLS

| Square Shank | Overall Length | Tool No. | Price Each |
|--------------|----------------|----------|------------|
| 1/4 | 2 | E4 | 4.20 |
| 5/16 | 2-1/4 | E5 | 4.40 |
| 3/8 | 2-1/2 | E6 | 4.40 |
| 7/16 | 3 | E7 | 4.50 |
| 1/2 | 3-1/2 | E8 | 5.55 |
| 5/8 | 4 | E10 | 6.84 |
| 3/4 | 4-1/2 | E12 | 9.55 |
| 1 | 7 | E16 | 15.50 |



FR AND FL STYLES

For facing on the outside of the part—offset head provides additional side clearance.



GR AND GL STYLES

For turning on the outside of the part—offset head provides additional side clearance.

OFFSET END-CUTTING TOOLS

| Square Shank | Overall Length | Tool No. Right Hand | Tool No. Left Hand | Price Each |
|--------------|----------------|---------------------|--------------------|------------|
| 1/2 | 3-1/2 | FR8 | FL8 | 9.50 |
| 5/8 | 4 | FR10 | FL10 | 10.75 |
| 3/4 | 4-1/2 | FR12 | FL12 | 12.50 |
| 1 | 7 | FR16 | FL16 | 18.50 |

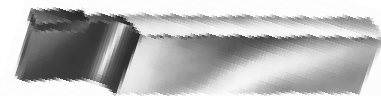
OFFSET SIDE-CUTTING TOOLS

| Square Shank | Overall Length | Tool No. Right Hand | Tool No. Left Hand | Price Each |
|--------------|----------------|---------------------|--------------------|------------|
| 1/2 | 3-1/2 | GR8 | GL8 | 9.50 |
| 5/8 | 4 | GR10 | GL10 | 10.75 |
| 3/4 | 4-1/2 | GR12 | GL12 | 12.50 |
| 1 | 7 | GR16 | GL16 | 18.50 |



CTR AND CTL STYLES

For grooving, trepanning and cut-off.



CUT-OFF TOOLS

| Tip Width | Shank Width | Shank Height | Overall Length | Tool No. Right Hand | Tool No. Left Hand | Price Each |
|-----------|-------------|--------------|----------------|---------------------|--------------------|------------|
| 1/8 | 1/2 | 1 | 5 | CTR11 | CTL11 | 11.75 |
| 3/16 | 1/2 | 1 | 5 | CTR22 | CTL22 | 12.00 |
| 1/4 | 1/2 | 1 | 5 | CTR33 | CTL33 | 12.25 |
| 5/16 | 1/2 | 1 | 5 | CTR44 | CTL44 | 12.25 |
| 3/8 | 5/8 | 1-1/4 | 5 | CTR55 | CTL55 | 14.80 |

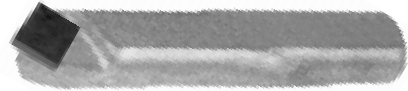
◆ CARBIDE TIPPED TOOL BITS

Please specify grade when ordering C-2 Cast Iron for nonferrous materials or C-5/C-6 Steel for ferrous materials.



ER AND EL STYLES

| OFFSET THREADING | | | | |
|------------------|----------------|---------------------|--------------------|------------|
| Square Shank | Overall Length | Tool No. Right Hand | Tool No. Left Hand | Price Each |
| 1/4 | 2 | ER4 | EL4 | 6.95 |
| 5/16 | 2-1/4 | ER5 | — | 7.05 |
| 3/8 | 2-1/2 | ER6 | EL6 | 7.05 |
| 1/2 | 3-1/2 | ER8 | EL8 | 7.90 |



TRC AND TRE STYLES

| ROUND SHANK BORING | | | |
|--------------------|----------------|----------|------------|
| Round Shank | Overall Length | Tool No. | Price Each |
| .312 | 1-1/2 | TRC5 | 5.80 |
| .312 | 1-1/2 | TRE5 | 5.80 |

TSA TSC AND TSE STYLES



- **TSA** for boring to a square shoulder in 90° boring bars .
- **TSC** for boring to a square shoulder in 30° boring bars or internal chamfering.
- **TSE** for boring to a square shoulder in 45° boring bars or boring with a 15° lead angle in 30° boring bar.

| SQUARE SHANK BORING | | | |
|---------------------|----------------|----------|------------|
| Square Shank | Overall Length | Tool No. | Price Each |
| 5/16 | 1-1/2 | TSA-5 | 6.70 |
| 3/8 | 1-3/4 | TSA-6 | 6.70 |
| 1/2 | 2-1/2 | TSA-8 | 7.40 |
| 5/16 | 1-1/2 | TSC-5 | 6.70 |
| 3/8 | 1-3/4 | TSC-6 | 6.70 |
| 1/2 | 2-1/2 | TSC-8 | 7.40 |

| SQUARE SHANK BORING | | | |
|---------------------|----------------|----------|------------|
| Square Shank | Overall Length | Tool No. | Price Each |
| 5/8 | 3 | TSC-10 | 10.80 |
| 3/4 | 3-1/2 | TSC-12 | 17.50 |
| 5/16 | 1-1/2 | TSE-5 | 6.70 |
| 3/8 | 1-3/4 | TSE-6 | 6.70 |
| 1/2 | 2-1/2 | TSE-8 | 7.40 |
| 5/8 | 3 | TSE-10 | 10.80 |

◆ CARBIDE TIPPED TOOL BIT SETS

Please specify grade when ordering C-2 Cast Iron for nonferrous materials or C-5/C-6 Steel for ferrous materials.

38 Piece Set

| Size | Set No. | Price Each |
|------|----------|------------|
| 1/4 | CTBS-14 | 129.00 |
| 5/16 | CTBS-516 | 139.00 |
| 3/8 | CTBS-38 | 139.00 |
| 1/2 | CTBS-12 | 159.00 |

Each set includes:

- 8 Pieces Each: AR style (Right Hand) AL style (Left Hand)
- 4 Pieces Each: BR style (Right Hand) BL style (Left Hand)
- 4 Pieces Each: C style
- 4 Pieces Each: D style
- 6 Pieces Each: E style

◆ STRAIGHT AND BENT TAIL LATHE DOGS



| LATHE DOGS | | | |
|------------|-------------------|---------------|------------|
| Size | Straight Tool No. | Bent Tool No. | Price Each |
| 1/2 | THLD50 | THBD50 | 2.75 |
| 3/4 | THLD75 | THBD75 | 3.99 |
| 1 | THLD100 | THBD100 | 5.95 |
| 1-1/4 | THLD125 | THBD125 | 6.90 |
| 1-1/2 | THLD150 | THBD150 | 7.85 |
| 1-3/4 | THLD175 | THBD175 | 8.30 |
| 2 | THLD200 | THBD200 | 9.67 |
| 2-1/2 | THLD250 | THBD250 | 17.50 |
| 3 | THLD300 | THBD300 | 22.50 |
| 4 | THLD400 | THBD400 | 33.85 |
| 5 | THLD500 | THBD500 | 43.30 |
| 6 | THLD600 | THBD600 | 49.90 |

◆ GRINDING CARRIERS



| CARRIERS | | |
|----------|----------|------------|
| Size | Tool No. | Price Each |
| 1/4 | THG25 | 4.30 |
| 3/8 | THG375 | 4.50 |
| 1/2 | THG500 | 4.60 |
| 5/8 | THG625 | 4.95 |
| 3/4 | THG750 | 5.50 |
| 1 | THG1000 | 5.90 |
| 1-1/4 | THG1250 | 7.75 |
| 1-1/2 | THG1500 | 8.85 |
| 1-3/4 | THG1750 | 10.50 |
| 2 | THG2000 | 11.90 |
| 2-1/2 | THG2500 | 13.40 |
| 3 | THG3000 | 14.85 |



MADE IN U.S.A.

CARBIDE INSERTS

Please order in package quantity, 10 inserts in a package.

TiN Coated is C5/C6 grade unless otherwise specified

TPG TRIANGLE — POSITIVE RAKE GROUND ALL OVER

| Insert Number | I.C. | Thickness | Radius | Price Each | | |
|---------------|------|-----------|--------|------------|-----------|------------|
| | | | | C-2 | C-5 & C-6 | TiN Coated |
| TPG-220 | 1/4 | 1/8 | 0 | 3.60 | 3.80 | 4.61 |
| TPG-221 | 1/4 | 1/8 | 1/64 | 4.14 | 4.37 | 5.30 |
| TPG-222 | 1/4 | 1/8 | 1/32 | 4.14 | 4.37 | 5.30 |
| TPG-223 | 1/4 | 1/8 | 3/64 | 4.14 | 4.37 | 5.30 |
| TPG-320 | 3/8 | 1/8 | 0 | 4.89 | 5.18 | 6.21 |
| TPG-321 | 3/8 | 1/8 | 1/64 | 4.89 | 5.18 | 6.21 |
| TPG-322 | 3/8 | 1/8 | 1/32 | 4.89 | 5.18 | 6.21 |
| TPG-323 | 3/8 | 1/8 | 3/64 | 4.89 | 5.18 | 6.21 |
| TPG-324 | 3/8 | 1/8 | 1/16 | 4.89 | 5.18 | 6.21 |
| TPG-430 | 1/2 | 3/16 | 0 | 5.98 | 6.50 | 7.60 |
| TPG-431 | 1/2 | 3/16 | 1/64 | 5.98 | 6.50 | 7.60 |
| TPG-432 | 1/2 | 3/16 | 1/32 | 5.98 | 6.50 | 7.60 |
| TPG-433 | 1/2 | 3/16 | 3/64 | 5.98 | 6.50 | 7.60 |
| TPG-434 | 1/2 | 3/16 | 1/16 | 5.98 | 6.50 | 7.60 |
| TPG-542 | 5/8 | 1/4 | 1/32 | 9.90 | 10.85 | 12.95 |
| TPG-543 | 5/8 | 1/4 | 3/64 | 9.90 | 10.85 | 12.95 |
| TPG-544 | 5/8 | 1/4 | 1/16 | 9.90 | 10.85 | 12.95 |

TNMG TRIANGLE — NEGATIVE RAKE WITH CHIP CONTROL

| Insert Number | I.C. | Thickness | Radius | Price Each | | |
|---------------|------|-----------|--------|------------|-----------|------------|
| | | | | C-2 | C-5 & C-6 | TiN Coated |
| TNMG-221 | 1/4 | 1/8 | 1/64 | 1.95 | 2.15 | 2.85 |
| TNMG-222 | 1/4 | 1/8 | 1/32 | 1.95 | 2.15 | 2.85 |
| TNMG-321 | 3/8 | 1/8 | 1/64 | 2.38 | 2.56 | 3.23 |
| TNMG-322 | 3/8 | 1/8 | 1/32 | 2.38 | 2.56 | 3.23 |
| TNMG-323 | 3/8 | 1/8 | 3/64 | 2.38 | 2.56 | 3.23 |
| TNMG-324 | 3/8 | 1/8 | 1/16 | 2.38 | 2.56 | 3.23 |
| TNMG-331 | 3/8 | 3/16 | 1/64 | 2.77 | 3.15 | 3.86 |
| TNMG-332 | 3/8 | 3/16 | 1/32 | 2.77 | 3.15 | 3.86 |
| TNMG-333 | 3/8 | 3/16 | 3/64 | 2.77 | 3.15 | 3.86 |
| TNMG-431 | 1/2 | 3/16 | 1/64 | 3.94 | 4.46 | 5.20 |
| TNMG-432 | 1/2 | 3/16 | 1/32 | 3.94 | 4.46 | 5.20 |
| TNMG-433 | 1/2 | 3/16 | 3/64 | 3.94 | 4.46 | 5.20 |
| TNMG-434 | 1/2 | 3/16 | 1/16 | 3.94 | 4.46 | 5.20 |
| TNMG-438 | 1/2 | 3/16 | 1/8 | 3.94 | 4.46 | 5.20 |
| TNMG-542 | 5/8 | 1/4 | 1/32 | 6.88 | 8.03 | 10.10 |
| TNMG-543 | 5/8 | 1/4 | 3/64 | 6.88 | 8.03 | 10.10 |
| TNMG-544 | 5/8 | 1/4 | 1/16 | 6.88 | 8.03 | 10.10 |
| TNMG-666* | 3/4 | 3/8 | 3/32 | 12.26 | 14.23 | 16.75 |

*5pcs per pkg

TNG TRIANGLE — NEGATIVE RAKE GROUND ALL OVER

| Insert Number | I.C. | Thickness | Radius | Price Each | | |
|---------------|------|-----------|--------|------------|-----------|------------|
| | | | | C-2 | C-5 & C-6 | TiN Coated |
| TNG-221 | 1/4 | 1/8 | 1/64 | 2.62 | 2.81 | 4.04 |
| TNG-222 | 1/4 | 1/8 | 1/32 | 2.62 | 2.81 | 4.04 |
| TNG-321 | 3/8 | 1/8 | 1/64 | 3.30 | 3.64 | 4.97 |
| TNG-322 | 3/8 | 1/8 | 1/32 | 3.30 | 3.64 | 4.97 |
| TNG-323 | 3/8 | 1/8 | 3/64 | 3.30 | 3.64 | 4.97 |
| TNG-324 | 3/8 | 1/8 | 1/16 | 3.30 | 3.64 | 4.97 |
| TNG-332 | 3/8 | 3/16 | 1/32 | 3.94 | 4.37 | 5.83 |
| TNG-333 | 3/8 | 3/16 | 3/64 | 3.94 | 4.37 | 5.83 |
| TNG-432 | 1/2 | 3/16 | 1/32 | 5.49 | 6.05 | 8.05 |
| TNG-433 | 1/2 | 3/16 | 3/64 | 5.49 | 6.05 | 8.05 |
| TNG-434 | 1/2 | 3/16 | 1/16 | 5.49 | 6.05 | 8.05 |
| TNG-544 | 5/8 | 1/4 | 1/16 | 8.48 | 9.67 | 13.50 |

TNMA TRIANGLE — NEGATIVE RAKE LAPPED TOP AND BOTTOM WITH HOLE

| Insert Number | I.C. | Thickness | Radius | Price Each | | |
|---------------|------|-----------|--------|------------|-----------|------------|
| | | | | C-2 | C-5 & C-6 | TiN Coated |
| TNMA-222 | 1/4 | 1/8 | 1/32 | 1.43 | 1.71 | 2.59 |
| TNMA-322 | 3/8 | 1/8 | 1/32 | 1.96 | 2.13 | 3.08 |
| TNMA-323 | 3/8 | 1/8 | 3/64 | 1.96 | 2.13 | 3.08 |
| TNMA-432 | 1/2 | 3/16 | 1/32 | 3.78 | 4.26 | 5.26 |
| TNMA-433 | 1/2 | 3/16 | 3/64 | 3.78 | 4.26 | 5.26 |
| TNMA-434 | 1/2 | 3/16 | 1/16 | 3.78 | 4.26 | 5.26 |
| TNMA-438 | 1/2 | 3/16 | 1/8 | 3.78 | 4.26 | 5.26 |
| TNMA-542 | 5/8 | 1/4 | 1/32 | 6.77 | 7.87 | 9.65 |
| TNMA-544 | 5/8 | 1/4 | 1/16 | 6.77 | 7.87 | 9.65 |
| TNMA-666* | 3/4 | 3/8 | 3/32 | 11.88 | 13.95 | 17.15 |

*5pc per pkg

TPU TRIANGLE — POSITIVE RAKE GROUND TOP AND BOTTOM

| Insert Number | I.C. | Thickness | Radius | Price Each | | |
|---------------|------|-----------|--------|------------|-----------|------------|
| | | | | C-2 | C-5 & C-6 | TiN Coated |
| TPU-222 | 1/4 | 1/8 | 1/32 | 2.38 | 2.80 | 3.55 |
| TPU-321 | 3/8 | 1/8 | 1/64 | 3.20 | 3.45 | 4.65 |
| TPU-322 | 3/8 | 1/8 | 1/32 | 3.20 | 3.45 | 4.65 |
| TPU-323 | 3/8 | 1/8 | 3/64 | 3.20 | 3.45 | 4.65 |
| TPU-431 | 1/2 | 3/16 | 1/64 | 5.15 | 5.55 | 6.68 |
| TPU-432 | 1/2 | 3/16 | 1/32 | 5.15 | 5.55 | 6.68 |
| TPU-433 | 1/2 | 3/16 | 3/64 | 5.15 | 5.55 | 6.68 |
| TPU-434 | 1/2 | 3/16 | 1/16 | 5.15 | 5.55 | 6.68 |
| TPU-543 | 5/8 | 1/4 | 3/64 | 9.40 | 9.90 | 11.35 |
| TPU-544 | 5/8 | 1/4 | 1/16 | 9.40 | 9.90 | 11.35 |

TNMP TRIANGLE — NEGATIVE RAKE 5° POSITIVE

| Insert Number | I.C. | Thickness | Radius | Price Each | |
|---------------|------|-----------|--------|------------|------------|
| | | | | C-5 & C-6 | TiN Coated |
| TNMP-321 | 3/8 | 1/8 | 1/64 | 3.30 | 4.10 |
| TNMP-322 | 3/8 | 1/8 | 1/32 | 3.30 | 4.10 |
| TNMP-323 | 3/8 | 1/8 | 3/64 | 3.30 | 4.10 |
| TNMP-331 | 3/8 | 3/16 | 1/64 | 3.75 | 4.55 |
| TNMP-332 | 3/8 | 3/16 | 1/32 | 3.75 | 4.55 |
| TNMP-333 | 3/8 | 3/16 | 3/64 | 3.75 | 4.55 |
| TNMP-431 | 1/2 | 3/16 | 1/64 | 5.32 | 6.19 |
| TNMP-432 | 1/2 | 3/16 | 1/32 | 5.32 | 6.19 |

TNU TRIANGLE — NEGATIVE RAKE GROUND TOP AND BOTTOM

| Insert Number | I.C. | Thickness | Radius | Price Each | | |
|---------------|------|-----------|--------|------------|-----------|------------|
| | | | | C-2 | C-5 & C-6 | TiN Coated |
| TNU-222 | 1/4 | 1/8 | 1/32 | 1.47 | 1.60 | 2.60 |
| TNU-322 | 3/8 | 1/8 | 1/32 | 1.95 | 2.26 | 3.38 |
| TNU-323 | 3/8 | 1/8 | 3/64 | 1.95 | 2.26 | 3.38 |
| TNU-332 | 3/8 | 3/16 | 1/32 | 2.46 | 2.91 | 4.05 |
| TNU-333 | 3/8 | 3/16 | 3/64 | 2.46 | 2.91 | 4.05 |
| TNU-432 | 1/2 | 3/16 | 1/32 | 3.60 | 4.30 | 5.89 |
| TNU-433 | 1/2 | 3/16 | 3/64 | 3.60 | 4.30 | 5.89 |
| TNU-434 | 1/2 | 3/16 | 1/16 | 3.60 | 4.30 | 5.89 |
| TNU-544 | 5/8 | 1/4 | 1/16 | 6.60 | 7.95 | 9.95 |

TPGH TRIANGLE — POSITIVE RAKE GROUND ALL OVER WITH CHIP GROOVE ON ONE SIDE

| Insert Number | I.C. | Thickness | Radius | Price Each | | |
|---------------|------|-----------|--------|------------|-----------|------------|
| | | | | C-2 | C-5 & C-6 | TiN Coated |
| TPGH-21.50 | 1/4 | 3/32 | 0 | 4.75 | 5.23 | 6.11 |
| TPGH-21.51 | 1/4 | 3/32 | 1/64 | 4.75 | 5.23 | 6.11 |
| TPGH-21.52 | 1/4 | 3/32 | 1/32 | 4.75 | 5.23 | 6.11 |
| TPGH-321 | 3/8 | 1/8 | 1/64 | 5.13 | 5.70 | 6.95 |
| TPGH-322 | 3/8 | 1/8 | 1/32 | 5.13 | 5.70 | 6.95 |

TPC TRIANGLE — POSITIVE RAKE GROUND ALL OVER WITH WIPING FLATS ON THREE CORNERS

| Insert Number | I.C. | Thickness | Price Each | | |
|---------------|------|-----------|------------|-----------|------------|
| | | | C-2 | C-5 & C-6 | TiN Coated |
| TPC-32ZR | 3/8 | 1/8 | 4.80 | 4.98 | 5.85 |

TNUC TRIANGLE — NEGATIVE RAKE BRAKE TURNING INSERT

| Insert Number | I.C. | Thickness | Radius | Hole Size | Price Each |
|---------------|------|-----------|--------|-----------|------------|
| | | | | | C-2 |
| TNUC-21.52 | 1/4 | 3/32 | 1/32 | .136 | 2.95 |
| TNUC-222 | 1/4 | 1/8 | 1/32 | .136 | 3.13 |

CARBIDE INSERTS

Please order in package quantity. 10 inserts in a package.



TPMA-NV

TRIANGLE— POSITIVE RAKE
60° V-THREAD

| Insert Number | I.C. | Thickness | Hole Size | Price Each | | |
|---------------|------|-----------|-----------|------------|-----------|-------------|
| | | | | C-2 | C-5 & C-6 | TiN Coated* |
| TPMA-32NV | 3/8 | .125 | .150 | 9.81 | 10.32 | 11.66 |
| TPMA-43NV | 1/2 | .188 | .203 | 11.40 | 11.97 | 13.11 |



TNMA-NV

TRIANGLE— NEUTRAL RAKE
60° V-THREAD

| Insert Number | I.C. | Thickness | Hole Size | Price Each | | |
|---------------|------|-----------|-----------|------------|-----------|-------------|
| | | | | C-2 | C-5 & C-6 | TiN Coated* |
| TNMA-32NV | 3/8 | .125 | .150 | 8.49 | 8.75 | 10.08 |
| TNMA-43NV | 1/2 | .188 | .203 | 10.22 | 10.71 | 12.27 |



TPMC-NV

TRIANGLE— POSITIVE RAKE
60° V-THREAD

| Insert Number | I.C. | Thickness | Hole Size | Price Each | | |
|---------------|------|-----------|-----------|------------|-----------|-------------|
| | | | | C-2 | C-5 & C-6 | TiN Coated* |
| TPMC-32NV | 3/8 | .125 | .150 | 9.81 | 10.32 | 11.66 |
| TPMC-43NV | 1/2 | .188 | .203 | 11.40 | 11.97 | 13.11 |



TNMC-NV

TRIANGLE— NEUTRAL RAKE
60° V-THREAD

| Insert Number | I.C. | Thickness | Hole Size | Price Each | | |
|---------------|------|-----------|-----------|------------|-----------|-------------|
| | | | | C-2 | C-5 & C-6 | TiN Coated* |
| TNMC-32NV | 3/8 | .125 | .150 | 8.49 | 8.75 | 10.08 |
| TNMC-43NV | 1/2 | .188 | .203 | 10.22 | 10.71 | 12.27 |



SPG

SQUARE — POSITIVE RAKE
GROUND ALL OVER

| Insert Number | I.C. | Thickness | Radius | Price Each | | |
|---------------|------|-----------|--------|------------|-----------|-------------|
| | | | | C-2 | C-5 & C-6 | TiN Coated* |
| SPG-321 | 3/8 | 1/8 | 1/64 | 4.31 | 4.52 | 5.24 |
| SPG-322 | 3/8 | 1/8 | 1/32 | 4.31 | 4.52 | 5.24 |
| SPG-323 | 3/8 | 1/8 | 3/64 | 4.31 | 4.52 | 5.24 |
| SPG-420 | 1/2 | 1/8 | 0 | 4.75 | 5.12 | 5.80 |
| SPG-421 | 1/2 | 1/8 | 1/64 | 4.75 | 5.12 | 5.80 |
| SPG-422 | 1/2 | 1/8 | 1/32 | 4.75 | 5.12 | 5.80 |
| SPG-423 | 1/2 | 1/8 | 3/64 | 4.75 | 5.12 | 5.80 |
| SPG-424 | 1/2 | 1/8 | 1/16 | 4.75 | 5.12 | 5.80 |
| SPG-432 | 1/2 | 3/16 | 1/32 | 5.47 | 6.16 | 7.54 |
| SPG-433 | 1/2 | 3/16 | 3/64 | 5.47 | 6.16 | 7.54 |
| SPG-632 | 3/4 | 3/16 | 1/32 | 7.93 | 8.75 | 10.30 |
| SPG-633 | 3/4 | 3/16 | 3/64 | 7.93 | 8.75 | 10.30 |
| SPG-634 | 3/4 | 3/16 | 1/16 | 7.93 | 8.75 | 10.30 |



SNG

SQUARE — NEGATIVE RAKE
GROUND ALL OVER

| Insert Number | I.C. | Thickness | Radius | Price Each | | |
|---------------|------|-----------|--------|------------|-----------|-------------|
| | | | | C-2 | C-5 & C-6 | TiN Coated* |
| SNG-321 | 3/8 | 1/8 | 1/64 | 2.99 | 3.29 | 3.85 |
| SNG-322 | 3/8 | 1/8 | 1/32 | 2.99 | 3.29 | 3.85 |
| SNG-323 | 3/8 | 1/8 | 3/64 | 2.99 | 3.29 | 3.85 |
| SNG-332 | 1/8 | 3/16 | 1/32 | — | 3.86 | 4.60 |
| SNG-422 | 1/2 | 1/8 | 1/32 | 3.80 | 4.08 | 4.71 |
| SNG-423 | 1/2 | 1/8 | 3/64 | 3.80 | 4.08 | 4.71 |
| SNG-424 | 1/2 | 1/8 | 1/16 | 3.80 | 4.08 | 4.71 |
| SNG-432 | 1/2 | 3/16 | 1/32 | 4.60 | 4.99 | 5.75 |
| SNG-433 | 1/2 | 3/16 | 3/64 | 4.60 | 4.99 | 5.75 |
| SNG-434 | 1/2 | 3/16 | 1/16 | 4.60 | 4.99 | 5.75 |
| SNG-632 | 3/4 | 3/16 | 1/32 | 7.20 | 8.25 | 9.46 |
| SNG-633 | 3/4 | 3/16 | 3/64 | 7.20 | 8.25 | 9.46 |
| SNG-634 | 3/4 | 3/16 | 1/16 | 7.20 | 8.25 | 9.46 |



SPU

SQUARE — POSITIVE RAKE
GROUND TOP AND BOTTOM

| Insert Number | I.C. | Thickness | Radius | Price Each | | |
|---------------|------|-----------|--------|------------|-----------|-------------|
| | | | | C-2 | C-5 & C-6 | TiN Coated* |
| SPU-322 | 3/8 | 1/8 | 1/32 | 2.89 | 3.46 | 4.05 |
| SPU-421 | 1/2 | 1/8 | 1/64 | 4.10 | 4.46 | 5.13 |
| SPU-422 | 1/2 | 1/8 | 1/32 | 4.10 | 4.46 | 5.13 |
| SPU-423 | 1/2 | 1/8 | 3/64 | 4.10 | 4.46 | 5.13 |
| SPU-632 | 3/4 | 3/16 | 1/32 | 7.78 | 8.63 | 9.99 |
| SPU-633 | 3/4 | 3/16 | 3/64 | 7.78 | 8.63 | 9.99 |
| SPU-634 | 3/4 | 3/16 | 1/16 | 7.78 | 8.63 | 9.99 |



SNU

SQUARE — NEGATIVE RAKE
GROUND TOP AND BOTTOM

| Insert Number | I.C. | Thickness | Radius | Price Each | | |
|---------------|------|-----------|--------|------------|-----------|-------------|
| | | | | C-2 | C-5 & C-6 | TiN Coated* |
| SNU-322 | 3/8 | 1/8 | 1/32 | 1.90 | 2.07 | 2.86 |
| SNU-422 | 1/2 | 1/8 | 1/32 | 2.63 | 2.97 | 3.57 |
| SNU-423 | 1/2 | 1/8 | 3/64 | 2.63 | 2.97 | 3.57 |
| SNU-424 | 1/2 | 1/8 | 1/16 | 2.63 | 2.97 | 3.57 |
| SNU-432 | 1/2 | 3/16 | 1/32 | 3.23 | 3.78 | 4.36 |
| SNU-433 | 1/2 | 3/16 | 3/64 | 3.23 | 3.78 | 4.36 |
| SNU-434 | 1/2 | 3/16 | 1/16 | 3.23 | 3.78 | 4.36 |
| SNU-633 | 3/4 | 3/16 | 3/64 | 5.79 | 6.80 | 7.95 |
| SNU-634 | 3/4 | 3/16 | 1/16 | 5.79 | 6.80 | 7.95 |



SNMA

SQUARE — NEGATIVE RAKE
LAPPED TOP AND BOTTOM
WITH HOLE

| Insert Number | I.C. | Thickness | Radius | Price Each | | |
|---------------|------|-----------|--------|------------|-----------|-------------|
| | | | | C-2 | C-5 & C-6 | TiN Coated* |
| SNMA-322 | 3/8 | 1/8 | 1/32 | 1.62 | 1.84 | 2.78 |
| SNMA-432 | 1/2 | 3/16 | 1/32 | 3.13 | 3.56 | 4.41 |
| SNMA-433 | 1/2 | 3/16 | 3/64 | 3.13 | 3.56 | 4.41 |
| SNMA-543 | 5/8 | 1/4 | 3/64 | 4.73 | 5.43 | 6.72 |
| SNMA-633 | 3/4 | 1/4 | 3/64 | 4.88 | 5.72 | 6.97 |
| SNMA-643 | 3/4 | 1/4 | 3/64 | 6.40 | 7.46 | 9.16 |
| SNMA-644 | 3/4 | 1/4 | 1/16 | 6.40 | 7.46 | 9.16 |
| SNMA-866 | 1 | 3/8 | 3/32 | 15.93 | 18.63 | 23.07 |



SPC

SQUARE — POSITIVE RAKE
GROUND ALL OVER W/ WIPING
FLATS ON FOUR CORNERS

| Insert Number | I.C. | Thickness | Price Each | | |
|---------------|------|-----------|------------|-----------|-------------|
| | | | C-2 | C-5 & C-6 | TiN Coated* |
| SPC-42ZR | 1/2 | 1/8 | 4.95 | 5.30 | 6.35 |



SNMG

SQUARE — NEGATIVE RAKE
WITH CHIP CONTROL

| Insert Number | I.C. | Thickness | Radius | Price Each | | |
|---------------|------|-----------|--------|------------|-----------|-------------|
| | | | | C-2 | C-5 & C-6 | TiN Coated* |
| SNMG-322 | 3/8 | 1/8 | 1/32 | 2.26 | 2.50 | 3.11 |
| SNMG-323 | 3/8 | 1/8 | 3/64 | 2.26 | 2.50 | 3.11 |
| SNMG-432 | 1/2 | 3/16 | 1/32 | 3.43 | 3.94 | 4.83 |
| SNMG-433 | 1/2 | 3/16 | 3/64 | 3.43 | 3.94 | 4.83 |
| SNMG-434 | 1/2 | 3/16 | 1/16 | 3.43 | 3.94 | 4.83 |
| SNMG-543 | 5/8 | 1/4 | 3/64 | 5.24 | 6.04 | 6.93 |
| SNMG-642 | 3/4 | 1/4 | 1/32 | 7.72 | 8.17 | 10.56 |
| SNMG-643 | 3/4 | 1/4 | 3/64 | 7.72 | 8.17 | 10.56 |
| SNMG-644 | 3/4 | 1/4 | 1/16 | 7.72 | 8.17 | 10.56 |
| SNMG-866 | 1 | 3/8 | 3/32 | 16.86 | 19.79 | 23.37 |



SEC

SQUARE — 20° POSITIVE RAKE
GROUND ALL OVER

| Insert Number | I.C. | Thickness | Price Each | | |
|---------------|------|-----------|------------|-----------|-------------|
| | | | C-2 | C-5 & C-6 | TiN Coated* |
| SEC-422 | 1/2 | 1/8 | 6.18 | 6.50 | 7.40 |
| SEC-422J | 1/2 | 1/8 | 7.10 | 7.58 | 8.48 |



SPGH

SQUARE — POSITIVE RAKE
GROUND ALL OVER
CHIP GROOVE ONE SIDE

| Insert Number | I.C. | Thickness | Radius | Price Each | | |
|---------------|------|-----------|--------|------------|-----------|-------------|
| | | | | C-2 | C-5 & C-6 | TiN Coated* |
| SPGH-432 | 1/2 | 1/32 | 3/64 | 9.45 | 9.95 | 11.95 |
| SPGH-433 | 1/2 | 3/16 | 3/64 | 9.45 | 9.95 | 11.95 |

*C-5 & C-6 Grade TiN Coated



MADE IN U.S.A.

CARBIDE INSERTS

Please order in package quantity. 10 inserts in a package.

TiN Coated is C5/C6 grade unless otherwise specified



RNG

ROUND — NEGATIVE RAKE
GROUND ALL OVER

| Insert Number | Dia. ± .001 | Thickness | Price Each | | |
|---------------|-------------|-----------|------------|-----------|------------|
| | | | C-2 | C-5 & C-6 | TiN Coated |
| RNG-32 | 3/8 | 1/8 | 2.81 | 3.07 | 3.64 |
| RNG-42 | 1/2 | 1/8 | 3.56 | 3.85 | 4.51 |
| RNG-43 | 1/2 | 3/16 | 4.51 | 4.94 | 5.74 |



RNMA

ROUND — NEGATIVE RAKE
LAPPED TOP AND BOTTOM
WITH HOLE

| Insert Number | Dia. ± .001 | Thickness | Price Each | | |
|---------------|-------------|-----------|------------|-----------|------------|
| | | | C-2 | C-5 & C-6 | TiN Coated |
| RNMA-32 | 3/8 | 1/8 | 1.71 | 1.96 | 2.83 |
| RNMA-43 | 1/2 | 3/16 | 2.26 | 2.73 | 3.63 |
| RNMA-64 | 3/4 | 1/4 | 5.12 | 5.94 | 7.50 |
| RNMA-86* | 1 | 3/8 | 12.27 | 14.19 | 17.38 |
| RNMA-106* | 1-1/4 | 3/8 | 17.93 | 20.74 | 25.69 |

*5pcs per pkg



DNMG

55° DIAMOND — NEGATIVE RAKE
WITH CHIP CONTROL

| Insert Number | I.C. | Thickness | Radius | Price Each | |
|---------------|------|-----------|--------|------------|------------|
| | | | | C-5 & C-6 | TiN Coated |
| DNMG-431 | 1/2 | 3/16 | 1/64 | 6.12 | 6.55 |
| DNMG-432 | 1/2 | 3/16 | 1/32 | 6.12 | 6.55 |
| DNMG-532 | 5/8 | 3/16 | 1/32 | 7.99 | 8.69 |
| DNMG-533 | 5/8 | 3/16 | 3/64 | 7.99 | 8.69 |
| DNMG-542 | 5/8 | 1/4 | 1/32 | 9.70 | 10.70 |
| DNMG-543 | 5/8 | 1/4 | 3/64 | 9.70 | 10.70 |



CNMG

80° DIAMOND — NEGATIVE
LAPPED WITH HOLE AND
CAST CHIPBREAKER

| Insert Number | I.C. | Thickness | Radius | Price Each | | |
|---------------|------|-----------|--------|------------|-----------|------------|
| | | | | C-2 | C-5 & C-6 | TiN Coated |
| CNMG-431 | 1/2 | 3/16 | 1/64 | 3.45 | 3.81 | 4.35 |
| CNMG-432 | 1/2 | 3/16 | 1/32 | 3.45 | 3.81 | 4.35 |
| CNMG-433 | 1/2 | 3/16 | 3/64 | 3.45 | 3.81 | 4.35 |
| CNMG-542 | 5/8 | 1/4 | 1/32 | — | 6.36 | 8.19 |
| CNMG-543 | 5/8 | 1/4 | 3/64 | — | 6.36 | 8.19 |
| CNMG-643 | 3/4 | 1/4 | 3/64 | — | 8.24 | 10.83 |
| CNMG-644 | 3/4 | 1/4 | 1/16 | — | 8.24 | 10.83 |



CTA

87° PARALLELOGRAMS
ALL SURFACES GROUND —
POSITIVE RAKE

| Insert Number | Please Specify Radii | | | | | | | I.C. | Thickness | Price Each | | |
|---------------|----------------------|------|------|------|------|-----|-----|------|-----------|------------|-------|------------|
| | 0 | 1/64 | 1/32 | 1/16 | 3/32 | 1/8 | — | | | C-2 | C-5 | TiN Coated |
| CTA-2* | 0 | 1/64 | 1/32 | 1/16 | 3/32 | 1/8 | — | .355 | 5/32 | 5.63 | 5.97 | 6.78 |
| CTA-4 | 0 | 1/64 | 1/32 | 1/16 | 3.32 | 1/8 | — | .460 | 3/16 | 6.92 | 7.15 | 8.13 |
| CTA-6 | — | — | 1/32 | 1/16 | 3/32 | 1/8 | — | .685 | 3/16 | 9.85 | 10.45 | 13.81 |
| CTA-8 | — | — | 1/32 | 1/16 | 3/32 | 1/8 | 1/4 | .750 | 3/16 | 11.28 | 12.43 | 14.47 |

* 88° Parallelogram



CHIPBREAKERS

| Part Number | I.C. | Effective Width | Price Each |
|-------------|------|-----------------|------------|
| CBT12 | 3/8 | .129 | 3.19 |
| CBT12N | 3/8 | .080 | 3.19 |
| CBT12F | 3/8 | .056 | 3.19 |
| CBT16 | 1/2 | .190 | 3.56 |

| Part Number | I.C. | Effective Width | Price Each |
|-------------|------|-----------------|------------|
| CBT16N | 1/2 | .100 | 4.16 |
| CBT16F | 1/2 | .054 | 4.27 |
| CBT20 | 5/8 | .190 | 4.59 |
| CBT20N | 5/8 | .100 | 4.80 |



RPG

ROUND — POSITIVE RAKE
GROUND ALL OVER

| Insert Number | Dia. ± .001 | Thickness | Price Each | | |
|---------------|-------------|-----------|------------|-----------|------------|
| | | | C-2 | C-5 & C-6 | TiN Coated |
| RPG-42 | 1/2 | 1/8 | 4.40 | 4.95 | 5.90 |



RNMG

ROUND — NEGATIVE RAKE
WITH CHIP CONTROL

| Insert Number | Dia. ± .001 | Thickness | Price Each | | |
|---------------|-------------|-----------|------------|-----------|------------|
| | | | C-2 | C-5 & C-6 | TiN Coated |
| RNMG-32 | 3/8 | 1/8 | 1.93 | 2.25 | 2.88 |
| RNMG-43 | 1/2 | 3/16 | 2.72 | 3.01 | 4.05 |
| RNMG-64 | 3/4 | 1/4 | 5.78 | 6.59 | 8.72 |
| RNMG-86* | 1 | 3/8 | 12.95 | 14.85 | 18.63 |

*5pcs per pkg



VNMG

35° DIAMOND — NEGATIVE RAKE
WITH CHIP CONTROL

| Insert Number | I.C. | Thickness | Radius | Price Each | |
|---------------|------|-----------|--------|------------|------------|
| | | | | C-5 & C-6 | TiN Coated |
| VNMG-331 | 3/8 | 3/16 | 1/64 | 5.75 | 6.20 |
| VNMG-332 | 3/8 | 3/16 | 1/32 | 5.75 | 6.20 |
| VNMG-333 | 3/8 | 3/16 | 3/64 | 5.75 | 6.20 |
| VNMG-431 | 1/2 | 3/16 | 1/64 | 6.63 | 7.68 |
| VNMG-432 | 1/2 | 3/16 | 1/32 | 6.63 | 7.68 |



CNMP

80° DIAMOND — 5° POSITIVE
LAPPED WITH HOLE
AND CAST CHIPBREAKER

| Insert Number | I.C. | Thickness | Radius | Price Each | |
|---------------|------|-----------|--------|------------|------------|
| | | | | C-5 & C-6 | TiN Coated |
| CNMP-431 | 1/2 | 3/16 | 1/64 | 4.70 | 5.40 |
| CNMP-432 | 1/2 | 3/16 | 1/32 | 4.70 | 5.40 |
| CNMP-642 | 3/4 | 1/4 | 1/32 | 10.45 | 12.02 |
| CNMP-643 | 3/4 | 1/4 | 3/64 | 10.45 | 12.02 |



TT INSERTS

11° POSITIVE LAPPED
WITH HOLE AND CAST
CHIPBREAKER

| Insert Number | I.C. | Thickness | Radius | Price Each | | |
|---------------|------|-----------|--------|------------|-----------|------------|
| | | | | C-2 | C-5 & C-6 | TiN Coated |
| TT-221 | 1/4 | 1/8 | .015 | 3.35 | 3.85 | 4.52 |
| TT-222 | 1/4 | 1/8 | .032 | 3.35 | 3.85 | 4.52 |
| TT-321 | 3/8 | 1/8 | .015 | 4.17 | 4.85 | 5.52 |
| TT-322 | 3/8 | 1/8 | .032 | 4.17 | 4.85 | 5.52 |



SHIMS

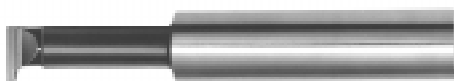
| Part Number | Dimensions | | Positive or Negative Width | Screw Size | Price Each |
|-------------|------------|------|----------------------------|------------|------------|
| | I.C. | T | | | |
| SHIM41 | 3/8 | 1/8 | P | 4-40 | 3.75 |
| SHIM48 | 3/8 | 3/16 | N | 4-40 | 3.99 |
| SHIM26 | 1/2 | 1/8 | N | 8-32 | 4.31 |
| SHIM37 | 1/2 | 1/8 | P | 8-32 | 4.59 |

◆ RECESSING TOOLS



HIGH SPEED AND CARBIDE TIPPED

- Maximum Reach — 3/8"
- Length of Shank — 1-1/2"
- Overall Length — 2"



- Recessing
- Grooving

For cutting recessing grooves in bowed, self-locking and retaining rings

REGULAR LENGTH

| HIGH SPEED STEEL | | | | | |
|-------------------|-----------------|----------------------|--------------------|-------------|------------|
| Minimum Bore | Width of Recess | Max. Depth of Recess | Cutting Edge to CL | Tool Number | Price Each |
| 3/8" SHANK | | | | | |
| 1/4 | .017/.018 | .050 | .14 | RA17S-H | 22.95 |
| 1/4 | .022/.023 | .050 | .14 | RA22S-H | 22.95 |
| 1/4 | .025/.026 | .050 | .14 | RA25S-H | 22.95 |
| 1/4 | .028/.030 | .050 | .14 | RA28S-H | 22.95 |
| 1/4 | .030/.031 | .050 | .14 | RA30S-H | 22.95 |
| 1/4 | .040/.042 | .050 | .14 | RA40S-H | 22.95 |
| 1/2" SHANK | | | | | |
| 13/32 | .033/.034 | .100 | .25 | RB33S-H | 24.50 |
| 13/32 | .038/.039 | .100 | .25 | RB38S-H | 24.50 |
| 13/32 | .039/.041 | .100 | .25 | RB39S-H | 24.50 |
| 13/32 | .046/.048 | .100 | .25 | RB46S-H | 24.50 |
| 13/32 | .055/.057 | .100 | .25 | RB55S-H | 24.50 |

| CARBIDE TIPPED | | | | | |
|-------------------|-----------------|----------------------|--------------------|-------------|------------|
| Minimum Bore | Width of Recess | Max. Depth of Recess | Cutting Edge to CL | Tool Number | Price Each |
| 3/8" SHANK | | | | | |
| 1/4 | .017/.018 | .050 | .14 | RA17S-C | 34.56 |
| 1/4 | .022/.023 | .050 | .14 | RA22S-C | 34.56 |
| 1/4 | .025/.026 | .050 | .14 | RA25S-C | 34.56 |
| 1/4 | .028/.030 | .050 | .14 | RA28S-C | 34.56 |
| 1/4 | .030/.031 | .050 | .14 | RA30S-C | 34.56 |
| 1/4 | .040/.042 | .050 | .14 | RA40S-C | 34.56 |
| 1/2" SHANK | | | | | |
| 13/32 | .033/.034 | .100 | .25 | RB33S-C | 36.99 |
| 13/32 | .038/.039 | .100 | .25 | RB38S-C | 36.99 |
| 13/32 | .039/.041 | .100 | .25 | RB39S-C | 36.99 |
| 13/32 | .046/.048 | .100 | .25 | RB46S-C | 36.99 |
| 13/32 | .055/.057 | .100 | .25 | RB55S-C | 36.99 |

LONG LENGTH

Length of Shank — 2"

| HIGH SPEED STEEL | | | | | | | |
|-------------------|------------|-----------------|----------------------|--------------------|----------------|-------------|------------|
| Min. Bore | Max. Reach | Width of Recess | Max. Depth of Recess | Cutting Edge to CL | Overall Length | Tool Number | Price Each |
| 3/8" SHANK | | | | | | | |
| 1/4 | 5/8 | .017/.018 | .050 | .14 | 2-3/4 | RA17L-H | 24.30 |
| 1/4 | 5/8 | .022/.023 | .050 | .14 | 2-3/4 | RA22L-H | 24.30 |
| 1/4 | 5/8 | .025/.026 | .050 | .14 | 2-3/4 | RA25L-H | 24.30 |
| 1/4 | 5/8 | .028/.030 | .050 | .14 | 2-3/4 | RA28L-H | 24.30 |
| 1/4 | 5/8 | .030/.031 | .050 | .14 | 2-3/4 | RA30L-H | 24.30 |
| 1/4 | 5/8 | .040/.042 | .050 | .14 | 2-3/4 | RA40L-H | 24.30 |
| 1/2" SHANK | | | | | | | |
| 13/32 | 1-1/8 | .033/.034 | .100 | .25 | 3-1/4 | RB33L-H | 25.95 |
| 13/32 | 1-1/8 | .038/.039 | .100 | .25 | 3-1/4 | RB38L-H | 25.95 |
| 13/32 | 1-1/8 | .039/.041 | .100 | .25 | 3-1/4 | RB39L-H | 25.95 |
| 13/32 | 1-1/8 | .046/.048 | .100 | .25 | 3-1/4 | RB46L-H | 25.95 |
| 13/32 | 1-1/8 | .055/.057 | .100 | .25 | 3-1/4 | RB55L-H | 25.95 |

| CARBIDE TIPPED | | | | | | | | |
|-------------------|------------|-----------------|----------------------|--------------------|----------------|-------------|------------|--|
| Min. Bore | Max. Reach | Width of Recess | Max. Depth of Recess | Cutting Edge to CL | Overall Length | Tool Number | Price Each | |
| 3/8" SHANK | | | | | | | | |
| 1/4 | 5/8 | .017/.018 | .050 | .14 | 2-3/4 | RA17L-C | 36.63 | |
| 1/4 | 5/8 | .022/.023 | .050 | .14 | 2-3/4 | RA22L-C | 36.63 | |
| 1/4 | 5/8 | .025/.026 | .050 | .14 | 2-3/4 | RA25L-C | 36.63 | |
| 1/4 | 5/8 | .028/.030 | .050 | .14 | 2-3/4 | RA28L-C | 36.63 | |
| 1/4 | 5/8 | .030/.031 | .050 | .14 | 2-3/4 | RA30L-C | 36.63 | |
| 1/4 | 5/8 | .040/.042 | .050 | .14 | 2-3/4 | RA40L-C | 36.63 | |
| 1/2" SHANK | | | | | | | | |
| 13/32 | 1-1/8 | .033/.034 | .100 | .25 | 3-1/4 | RB33L-C | 39.21 | |
| 13/32 | 1-1/8 | .038/.039 | .100 | .25 | 3-1/4 | RB38L-C | 39.21 | |
| 13/32 | 1-1/8 | .039/.041 | .100 | .25 | 3-1/4 | RB39L-C | 39.21 | |
| 13/32 | 1-1/8 | .046/.048 | .100 | .25 | 3-1/4 | RB46L-C | 39.21 | |
| 13/32 | 1-1/8 | .055/.057 | .100 | .25 | 3-1/4 | RB55L-C | 39.21 | |

| HIGH SPEED STEEL SETS | |
|---|--|
| 3/8" SHANK | |
| REGULAR LENGTH SET NO. RA375HS 6 Piece Set Includes 1 Piece of Each: Shown Above Supplied in Wood Block SET PRICE — \$137.00 | LONG LENGTH SET NO. RA375HL 6 Piece Set Includes 1 Piece of Each: Shown Above Supplied in Wood Block SET PRICE — \$145.00 |
| 1/2" SHANK | |
| REGULAR LENGTH SET NO. RB500HS 5 Piece Set Includes 1 Piece of Each: Shown Above Supplied in Wood Block SET PRICE — \$122.00 | LONG LENGTH SET NO. RB500HL 5 Piece Set Includes 1 Piece of Each: Shown Above Supplied in Wood Block SET PRICE — \$129.00 |

| CARBIDE TIPPED SETS | |
|---|--|
| 3/8" SHANK | |
| REGULAR LENGTH SET NO. RA375CS 6 Piece Set Includes 1 Piece of Each: Shown Above Supplied in Wood Block SET PRICE — \$207.00 | LONG LENGTH SET NO. RA375CL 6 Piece Set Includes 1 Piece of Each: Shown Above Supplied in Wood Block SET PRICE — \$219.00 |
| 1/2" SHANK | |
| REGULAR LENGTH SET NO. RB500CS 5 Piece Set Includes 1 Piece of Each: Shown Above Supplied in Wood Block SET PRICE — \$184.00 | LONG LENGTH SET NO. RB500CL 5 Piece Set Includes 1 Piece of Each: Shown Above Supplied in Wood Block SET PRICE — \$196.00 |



SOLID CARBIDE

• CARBIDE BURS

1/4" SHANK — DOUBLE CUT



(SA) Cylinder Shape

| CYLINDRICAL | | | |
|-------------|-------------|---------------|------------|
| Tool No. | Cutter Dia. | Length of Cut | Price Each |
| SA-11 | 1/8 | 1/2 | 10.90 |
| SA-14 | 3/16 | 5/8 | 9.90 |
| SA-1 | 1/4 | 5/8 | 9.70 |
| SA-1L | 1/4 | 1 | 20.20 |
| SA-2 | 5/16 | 3/4 | 12.20 |
| SA-3 | 3/8 | 3/4 | 13.20 |
| SA-3L | 3/8 | 1 | 25.80 |
| SA-3XL | 3/8 | 1-1/2 | 25.80 |
| SA-4 | 7/16 | 1 | 19.80 |
| SA-5 | 1/2 | 1 | 20.80 |
| SA-6 | 5/8 | 1 | 26.30 |
| SA-16 | 3/4 | 3/4 | 31.30 |
| SA-7 | 3/4 | 1 | 39.30 |
| SA-9 | 1 | 1 | 56.70 |



(SB) Cylinder Shape With End Cut

| CYLINDRICAL WITH END CUT | | | |
|--------------------------|-------------|---------------|------------|
| Tool No. | Cutter Dia. | Length of Cut | Price Each |
| SB-11 | 1/8 | 1/2 | 10.90 |
| SB-14 | 3/16 | 5/8 | 11.30 |
| SB-1 | 1/4 | 5/8 | 10.50 |
| SB-1L | 1/4 | 1 | 23.10 |
| SB-2 | 5/16 | 3/4 | 13.50 |
| SB-3 | 3/8 | 3/4 | 14.50 |
| SB-3L | 3/8 | 1 | 27.10 |
| SB-4 | 7/16 | 1 | 21.40 |
| SB-5 | 1/2 | 1 | 23.10 |
| SB-6 | 5/8 | 1 | 28.80 |
| SB-16 | 3/4 | 3/4 | 34.50 |
| SB-7 | 3/4 | 1 | 42.00 |
| SB-9 | 1 | 1 | 63.00 |



(SC) Cylinder Shape With Radius End

| CYLINDRICAL BALL NOSE | | | |
|-----------------------|-------------|---------------|------------|
| Tool No. | Cutter Dia. | Length of Cut | Price Each |
| SC-11 | 1/8 | 1/2 | 10.90 |
| SC-12 | 1/8 | 5/8 | 11.30 |
| SC-14 | 3/16 | 5/8 | 11.30 |
| SC-1 | 1/4 | 5/8 | 11.10 |
| SC-1L | 1/4 | 1 | 24.10 |
| SC-2 | 5/16 | 3/4 | 14.50 |
| SC-3 | 3/8 | 3/4 | 14.70 |
| SC-3L | 3/8 | 1 | 27.30 |
| SC-4 | 7/16 | 1 | 21.40 |
| SC-5 | 1/2 | 1 | 23.10 |
| SC-6 | 5/8 | 1 | 29.40 |
| SC-7 | 3/4 | 1 | 42.00 |
| SC-9 | 1 | 1 | 73.50 |



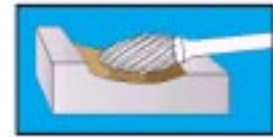
(SD) Ball Shape

| BALL SHAPE | | | |
|------------|-------------|---------------|------------|
| Tool No. | Cutter Dia. | Length of Cut | Price Each |
| SD-11 | 1/8 | 1/8 | 11.10 |
| SD-14 | 3/16 | 3/16 | 11.10 |
| SD-1 | 1/4 | 1/4 | 10.70 |
| SD-2 | 5/16 | 5/16 | 11.60 |
| SD-3 | 3/8 | 3/8 | 13.10 |
| SD-4 | 7/16 | 7/16 | 16.30 |
| SD-5 | 1/2 | 1/2 | 16.80 |
| SD-6 | 5/8 | 5/8 | 21.00 |
| SD-7 | 3/4 | 3/4 | 28.60 |
| SD-9 | 1 | 1 | 47.00 |



(SE) Oval Shape

| OVAL SHAPE | | | |
|------------|-------------|---------------|------------|
| Tool No. | Cutter Dia. | Length of Cut | Price Each |
| SE-11 | 3/16 | 5/16 | 13.20 |
| SE-1 | 1/4 | 3/8 | 13.20 |
| SE-3 | 3/8 | 5/8 | 16.30 |
| SE-5 | 1/2 | 7/8 | 23.10 |
| SE-6 | 5/8 | 1 | 32.70 |
| SE-7 | 3/4 | 1 | 42.00 |



(SF) Tree Shape With Radius End

| ROUND TREE SHAPE | | | |
|------------------|-------------|---------------|------------|
| Tool No. | Cutter Dia. | Length of Cut | Price Each |
| SF-11 | 1/8 | 1/2 | 12.00 |
| SF-1 | 1/4 | 5/8 | 12.00 |
| SF-3 | 3/8 | 3/4 | 15.10 |
| SF-4 | 7/16 | 1 | 19.70 |
| SF-13 | 1/2 | 3/4 | 21.20 |
| SF-5 | 1/2 | 1 | 21.40 |
| SF-6 | 5/8 | 1 | 30.70 |
| SF-7 | 3/4 | 1 | 40.50 |
| SF-14 | 3/4 | 1-1/4 | 42.20 |
| SF-15 | 3/4 | 1-1/2 | 58.80 |



(SG) Tree Shape With Pointed End

| POINTED TREE SHAPE | | | |
|--------------------|-------------|---------------|------------|
| Tool No. | Cutter Dia. | Length of Cut | Price Each |
| SG-1 | 1/4 | 5/8 | 12.00 |
| SG-2 | 5/16 | 3/4 | 16.20 |
| SG-3 | 3/8 | 3/4 | 15.10 |
| SG-13 | 1/2 | 3/4 | 21.20 |
| SG-5 | 1/2 | 1 | 21.40 |
| SG-6 | 5/8 | 1 | 30.70 |
| SG-7 | 3/4 | 1 | 40.50 |
| SG-15 | 3/4 | 1 | 62.37 |



(SH) Flame Shape

| FLAME SHAPE | | | |
|-------------|-------------|---------------|------------|
| Tool No. | Cutter Dia. | Length of Cut | Price Each |
| SH-1 | 1/4 | 1/2 | 13.20 |
| SH-2 | 5/16 | 3/4 | 14.70 |
| SH-5 | 1/2 | 1-1/4 | 30.20 |
| SH-6 | 5/8 | 1-7/16 | 43.50 |
| SH-7 | 3/4 | 1-5/8 | 63.00 |



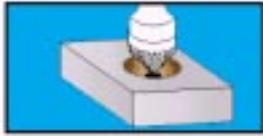
(SJ) 60° Cone Shape

| 60° INCLUDED ANGLE | | | |
|--------------------|-------------|---------------|------------|
| Tool No. | Cutter Dia. | Length of Cut | Price Each |
| SJ-1 | 1/4 | 3/16 | 11.00 |
| SJ-2 | 5/16 | 1/4 | 12.00 |
| SJ-3 | 3/8 | 1/4 | 13.40 |
| SJ-5 | 1/2 | 7/16 | 16.60 |
| SJ-6 | 5/8 | 1/2 | 21.80 |
| SJ-7 | 3/4 | 5/8 | 29.30 |
| SJ-9 | 1 | 3/4 | 46.20 |



• CARBIDE BURS

1/4" SHANK — DOUBLE CUT



(SK) 90° Cone Shape

| 90° INCLUDED ANGLE | | | |
|--------------------|-------------|---------------|------------|
| Tool No. | Cutter Dia. | Length of Cut | Price Each |
| SK-1 | 1/4 | 1/8 | 11.00 |
| SK-2 | 5/16 | 3/16 | 12.00 |
| SK-3 | 3/8 | 3/16 | 13.40 |
| SK-5 | 1/2 | 1/4 | 16.60 |
| SK-6 | 5/8 | 5/16 | 21.80 |
| SK-7 | 3/4 | 3/8 | 29.30 |
| SK-9 | 1 | 1/2 | 46.20 |



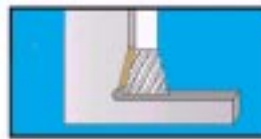
(SL) Taper With Radius End

| 14° INCLUDED ANGLE | | | |
|--------------------|-------------|---------------|------------|
| Tool No. | Cutter Dia. | Length of Cut | Price Each |
| SL-1 | 1/4 | 5/8 | 12.10 |
| SL-2 | 5/16 | 7/8 | 15.30 |
| SL-3 | 3/8 | 1-1/16 | 18.30 |
| SL-4 | 1/2 | 1-1/8 | 23.30 |
| SL-5 | 5/8 | 1-3/16 | 40.90 |
| SL-6 | 5/8 | 1-5/16 | 40.90 |
| SL-7 | 3/4 | 1-1/2 | 58.80 |



(SM) Cone Shape

| CONE SHAPE | | | |
|------------|-------------|---------------|------------|
| Tool No. | Cutter Dia. | Length of Cut | Price Each |
| SM-1 | 1/4 | 1/2 | 11.70 |
| SM-2 | 1/4 | 3/4 | 12.60 |
| SM-3 | 1/4 | 1 | 13.40 |
| SM-4 | 3/8 | 5/8 | 18.00 |
| SM-5 | 1/2 | 7/8 | 23.10 |
| SM-6 | 5/8 | 1 | 35.90 |



(SN) Inverted Cone Shape

| INVERTED CONE | | | |
|---------------|-------------|---------------|------------|
| Tool No. | Cutter Dia. | Length of Cut | Price Each |
| SN-1 | 1/4 | 5/16 | 10.80 |
| SN-2 | 3/8 | 3/8 | 20.60 |
| SN-4 | 1/2 | 1/2 | 21.40 |
| SN-6 | 5/8 | 3/4 | 30.70 |
| SN-7 | 3/4 | 5/8 | 36.10 |

BUR DISPENSER

Dimensions:
Measures 14-5/8" W x 7-3/8" D x 7-3/4" H
Weight: 10-1/2 lbs.



Holds these sizes:

- | | | |
|------|------|------|
| SA-1 | SD-5 | SG-3 |
| SA-3 | SE-1 | SG-4 |
| SA-5 | SE-3 | SL-1 |
| SB-1 | SE-5 | SL-3 |
| SB-3 | SF-1 | SL-4 |
| SB-5 | SF-3 | SM-2 |
| SD-1 | SF-5 | SM-3 |
| SD-3 | SG-1 | SM-5 |

PART NO. CZD132

PRICE EACH - \$78.00

Does not include burs

• MINIATURE CARBIDE BURS

DOUBLE CUT

1/16" THRU 1/8" DIAMETER HEAD
1-1/2" OVERALL LENGTH
1/8" SHANK



| Tool No. | Cutter Dia. | Length of Cut | Price Each |
|----------|-------------|---------------|------------|
| SA-41 | 1/16 | 1/4 | 5.20 |
| SA-42 | 3/32 | 7/16 | 5.20 |
| SA-43 | 1/8 | 9/16 | 5.20 |
| SC-41 | 3/32 | 7/16 | 5.20 |
| SC-42 | 1/8 | 9/16 | 5.20 |
| SD-41 | 3/32 | 3/32 | 5.20 |
| SD-42 | 1/8 | 1/8 | 5.20 |
| SE-41 | 1/8 | 7/32 | 5.20 |
| SF-41 | 1/8 | 1/4 | 5.20 |
| SF-42 | 1/8 | 1/2 | 5.20 |
| SG-41 | 1/8 | 1/4 | 5.20 |
| SG-42 | 1/8 | 5/16 | 5.20 |

| Tool No. | Cutter Dia. | Length of Cut | Price Each |
|----------|-------------|---------------|------------|
| SG-43 | 1/8 | 3/8 | 5.20 |
| SG-44 | 1/8 | 1/2 | 5.20 |
| SH-41 | 1/8 | 1/4 | 5.20 |
| SJ-42 | 1/8 | 3/32 | 5.20 |
| SK-42 | 1/8 | 1/16 | 5.20 |
| SL-41 | 1/8 | 3/8 | 5.20 |
| SL-42 | 1/8 | 1/2 | 5.20 |
| SM-41 | 1/8 | 11/32 | 5.20 |
| SM-42 | 1/8 | 7/16 | 5.20 |
| SM-43 | 1/8 | 5/8 | 5.20 |
| SN-42 | 1/8 | 3/16 | 5.20 |

| Tool No. | Cutter Dia. | Length of Cut | Price Each |
|----------|-------------|---------------|------------|
| SA-51 | 1/4 | 1/2 | 8.90 |
| SB-51 | 1/4 | 3/16 | 8.90 |
| SC-51 | 1/4 | 1/2 | 8.90 |
| SD-51 | 1/4 | 7/32 | 8.90 |
| SE-51 | 1/4 | 3/8 | 8.90 |
| SF-51 | 1/4 | 1/2 | 8.90 |
| SG-51 | 1/4 | 1/2 | 8.90 |
| SM-51 | 1/4 | 1/2 | 8.90 |
| SN-51 | 1/4 | 1/4 | 8.90 |



SOLID CARBIDE

• EXTRA LONG CARBIDE BURS

1/4" SHANK, 6" OVERALL — DOUBLE CUT



| CYLINDRICAL SHAPE | | | |
|-------------------|-------------|---------------|------------|
| Tool No. | Cutter Dia. | Length of Cut | Price Each |
| SA-1L6 | 1/4 | 1/2 | 20.20 |
| SA-3L6 | 3/8 | 3/4 | 25.80 |
| SA-5L6 | 1/2 | 1 | 33.40 |



| CYLINDRICAL BALL NOSE | | | |
|-----------------------|-------------|---------------|------------|
| Tool No. | Cutter Dia. | Length of Cut | Price Each |
| SC-1L6 | 1/4 | 1/2 | 24.10 |
| SC-3L6 | 3/8 | 3/4 | 27.30 |
| SC-5L6 | 1/2 | 1 | 35.70 |



| BALL SHAPE | | | |
|------------|-------------|---------------|------------|
| Tool No. | Cutter Dia. | Length of Cut | Price Each |
| SD-1L6 | 1/4 | 7/32 | 23.30 |
| SD-3L6 | 3/8 | 5/16 | 25.40 |
| SD-5L6 | 1/2 | 7/16 | 29.40 |



| OVAL SHAPE | | | |
|------------|-------------|---------------|------------|
| Tool No. | Cutter Dia. | Length of Cut | Price Each |
| SE-1L6 | 1/4 | 3/8 | 25.70 |
| SE-3L6 | 3/8 | 5/8 | 28.90 |
| SE-5L6 | 1/2 | 7/8 | 35.70 |



| ROUND TREE SHAPE | | | |
|------------------|-------------|---------------|------------|
| Tool No. | Cutter Dia. | Length of Cut | Price Each |
| SF-1L6 | 1/4 | 1/2 | 24.60 |
| SF-3L6 | 3/8 | 3/4 | 27.70 |
| SF-5L6 | 1/2 | 1 | 34.00 |



| POINTED TREE SHAPE | | | |
|--------------------|-------------|---------------|------------|
| Tool No. | Cutter Dia. | Length of Cut | Price Each |
| SG-1L6 | 1/4 | 1/2 | 24.60 |
| SG-3L6 | 3/8 | 3/4 | 27.70 |
| SG-5L6 | 1/2 | 1 | 34.00 |



| FLAME SHAPE | | | |
|-------------|-------------|---------------|------------|
| Tool No. | Cutter Dia. | Length of Cut | Price Each |
| SH-2L6 | 5/16 | 3/4 | 27.30 |
| SH-5L6 | 1/2 | 1-1/4 | 43.20 |



| 14° INCLUDED ANGLE | | | |
|--------------------|-------------|---------------|------------|
| Tool No. | Cutter Dia. | Length of Cut | Price Each |
| SL-1L6 | 1/4 | 5/8 | 24.70 |
| SL-3L6 | 3/8 | 1-1/16 | 30.90 |
| SL-4L6 | 1/2 | 1-1/8 | 35.90 |

SOLID CARBIDE

• CARBIDE BURS FOR ALUMINUM

1/4" SHANK



| OVAL SHAPE | | | |
|------------|-------------|---------------|------------|
| Tool No. | Cutter Dia. | Length of Cut | Price Each |
| SE-3NF | 3/8 | 5/8 | 20.90 |
| SE-5NF | 1/2 | 7/8 | 29.70 |
| SE-6NF | 5/8 | 1 | 42.10 |
| SE-7NF | 3/4 | 1 | 54.00 |



| ROUND TREE SHAPE | | | |
|------------------|-------------|---------------|------------|
| Tool No. | Cutter Dia. | Length of Cut | Price Each |
| SF-1NF | 1/4 | 3/4 | 15.40 |
| SF-3NF | 3/8 | 3/4 | 19.50 |
| SF-5NF | 1/2 | 1 | 27.60 |
| SF-6NF | 5/8 | 1 | 39.40 |
| SF-14NF | 3/4 | 1-1/4 | 54.30 |



| 14° INCLUDED ANGLE | | | |
|--------------------|-------------|---------------|------------|
| Tool No. | Cutter Dia. | Length of Cut | Price Each |
| SL-3NF | 3/8 | 1-1/16 | 23.50 |
| SL-4NF | 1/2 | 1-1/8 | 30.00 |
| SL-5NF | 5/8 | 1-3/16 | 52.70 |
| SL-6NF | 5/8 | 1-5/16 | 52.70 |
| SL-7NF | 3/4 | 1-1/2 | 75.60 |



| CYLINDRICAL | | | |
|-------------|-------------|---------------|------------|
| Tool No. | Cutter Dia. | Length of Cut | Price Each |
| SA-1NF | 1/4 | 3/4 | 12.50 |
| SA-3NF | 3/8 | 3/4 | 17.00 |
| SA-5NF | 1/2 | 1 | 26.70 |
| SA-6NF | 5/8 | 1 | 33.50 |
| SA-7NF | 3/4 | 1 | 50.50 |



| CYLINDRICAL BALL NOSE | | | |
|-----------------------|-------------|---------------|------------|
| Tool No. | Cutter Dia. | Length of Cut | Price Each |
| SC-1NF | 1/4 | 3/4 | 14.50 |
| SC-3NF | 3/8 | 3/4 | 18.90 |
| SC-5NF | 1/2 | 1 | 29.70 |
| SC-6NF | 5/8 | 1 | 37.80 |
| SC-7NF | 3/4 | 1 | 54.00 |



| BALL SHAPE | | | |
|------------|-------------|---------------|------------|
| Tool No. | Cutter Dia. | Length of Cut | Price Each |
| SD-1NF | 1/4 | 7/32 | 14.20 |
| SD-3NF | 3/8 | 5/16 | 16.50 |
| SD-5NF | 1/2 | 7/16 | 21.60 |
| SD-6NF | 5/8 | 9/16 | 27.00 |
| SD-7NF | 3/4 | 11/16 | 36.70 |



SETS

| CARBIDE BUR BOX SETS — DOUBLE CUT | | | |
|--|----------------|---------|------------|
| Set Description | Pieces Per Set | Set No. | Price Each |
| • SA1, SC1, SD1, SE1, SF1, SG1, SH1, SJ1, SK1, SL1, SM1, SN1 | 12 | CBS12 | 146.00 |
| • SA51, SB51, SC51, SD51, SE51, SF51, SG51, SM51, SN51 | 9 | CBS9 | 80.10 |
| • SA1, SA3, SC1, SC3, SD1, SD3, SF1, SF3 | 8 | CBS8 | 99.00 |

◆ UNIVERSAL DRILL CHUCKS

KEY TYPE



| Capacity | | Mount | Tool No. | Price Each |
|----------|----|--------|----------|------------|
| Inches | mm | | | |
| 3/8 | 10 | 3/8-24 | DCK375 | 11.53 |
| 3/8 | 10 | 1/2-20 | DCK375A | 11.53 |
| 1/2 | 13 | 1/2-20 | DCK500 | 15.72 |
| 1/2 | 13 | 33JT | DCK500A | 15.72 |
| 1/2 | 13 | 6JT | DCK500B | 15.72 |
| 5/8 | 16 | 5/8-16 | DCK625 | 24.18 |

Chucks are provided with a key

◆ PRECISION BALL BEARING KEYLESS DRILL CHUCKS

HEAVY DUTY

- Keyless Drill Chucks are designed for high accuracy applications on either conventional or CNC machines in drilling, boring & counter-boring operations.
- Tighten and release by hand.
- Chucks have self-tightening feature.



◆ CHUCK KEYS

LIST NO. CH100

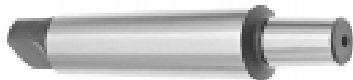


| Key No. | For Use On | Price Each | Key No. | For Use On | Price Each |
|---------|--|------------|---------|---|------------|
| K0 | 0 Series | 2.90 | K7 | 7 Series | 2.35 |
| K1 | 1 Series | 1.95 | K30 | 30, 31 Series, 8-1/2N | 2.75 |
| K2 | 2 Series | 2.90 | K32 | 32, 33 Series, 11N | 2.95 |
| K3 | 3, 6, 34 Series, 14N, 55B, 56B, 58B, 75A | 3.30 | KK | DC8, SM8, 74K, 22BA, 23B, 24BA, 26BA, 29A | 1.90 |
| K3C | 633C, 633D | 3.45 | ST13 | Small Master Chuck Keys | 13.00 |
| K4 | 36, 37 Series, 16N, 18N, 59B | 6.80 | ST12 | Large Master Chuck Keys | 14.20 |
| K5 | 20N | 13.00 | | | |

| Capacity | | Mount | Tool No. | Price Each |
|----------|--------|-------|----------|------------|
| Inches | mm | | | |
| 0-1/4 | 0.3-6 | 1JT | DCK1JT | 53.58 |
| 1/64-3/8 | 0.5-10 | 2JT | DCK2JT | 55.66 |
| 1/64-3/8 | 0.5-10 | 33JT | DCK33JT | 55.67 |
| 1/32-1/2 | 1-13 | 2JT | DCK2JTA | 66.18 |
| 1/32-1/2 | 1-13 | 33JT | DCK33JTA | 66.18 |
| 1/32-1/2 | 1-13 | 6JT | DCK6JT | 66.18 |
| 1/8-5/8 | 3-16 | 6JT | DCK6JTA | 80.86 |
| 1/8-5/8 | 3-16 | 3JT | DCK3JT | 80.86 |

◆ DRILL CHUCK ARBORS

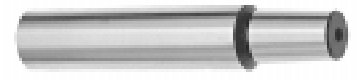
MORSE TAPER TO JACOBS TAPER



R-8 SHANKS FOR DRILL CHUCKS



STRAIGHT TO JACOBS TAPER

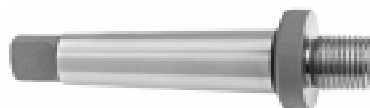


| Morse Taper Shank | To Jacobs Taper | Tool No. | Price Each |
|-------------------|-----------------|----------|------------|
| 1 | 1 | DCM1J-1 | 5.95 |
| 1 | 2 | DCM1J-2 | 5.95 |
| 1 | 3 | DCM1J-3 | 6.50 |
| 1 | 33 | DCM1J-33 | 6.50 |
| 1 | 6 | DCM1J-6 | 6.50 |
| 2 | 1 | DCM2J-1 | 5.95 |
| 2 | 2 | DCM2J-2 | 5.95 |
| 2 | 3 | DCM2J-3 | 5.95 |
| 2 | 33 | DCM2J-33 | 5.95 |
| 2 | 4 | DCM2J-4 | 7.75 |
| 2 | 6 | DCM2J-6 | 7.75 |
| 3 | 1 | DCM3J-1 | 7.95 |
| 3 | 2 | DCM3J-2 | 7.95 |
| 3 | 3 | DCM3J-3 | 7.95 |
| 3 | 33 | DCM3J-33 | 7.95 |
| 3 | 4 | DCM3J-4 | 8.75 |
| 3 | 5 | DCM3J-5 | 8.75 |
| 3 | 6 | DCM3J-6 | 8.75 |
| 4 | 2 | DCM4J-2 | 12.50 |
| 4 | 3 | DCM4J-3 | 12.50 |
| 4 | 33 | DCM4J-33 | 12.50 |
| 4 | 4 | DCM4J-4 | 12.50 |
| 4 | 5 | DCM4J-5 | 12.50 |
| 4 | 6 | DCM4J-6 | 12.50 |
| 5 | 3 | DCM5J-3 | 22.75 |
| 5 | 4 | DCM5J-4 | 22.75 |
| 5 | 5 | DCM5J-5 | 22.75 |
| 5 | 6 | DCM5J-6 | 22.75 |

| Morse Taper Shank | To Jacobs Taper | Tool No. | Price Each |
|-------------------|-----------------|----------|------------|
| R8 | 1 | R8J1 | 26.80 |
| R8 | 2 | R8J2 | 26.80 |
| R8 | 3 | R8J3 | 26.80 |
| R8 | 33 | R8J33 | 26.80 |
| R8 | 4 | R8J4 | 26.80 |
| R8 | 6 | R8J6 | 26.80 |

| Straight Shank Size | To Jacobs Taper | Tool No. | Price Each |
|---------------------|-----------------|-----------|------------|
| 1/2 | 0 | DCS12J-0 | 5.75 |
| 1/2 | 1 | DCS12J-1 | 5.75 |
| 1/2 | 2 | DCS12J-2 | 5.75 |
| 1/2 | 3 | DCS12J-3 | 5.75 |
| 1/2 | 33 | DCS12J-33 | 5.75 |
| 1/2 | 4 | DCS12J-4 | 7.75 |
| 1/2 | 6 | DCS12J-6 | 5.75 |
| 5/8 | 1 | DCS58J-1 | 5.95 |
| 5/8 | 2 | DCS58J-2 | 5.95 |
| 5/8 | 3 | DCS58J-3 | 6.50 |
| 5/8 | 33 | DCS58J-33 | 6.50 |
| 5/8 | 4 | DCS58J-4 | 7.75 |
| 5/8 | 6 | DCS58J-6 | 7.75 |
| 3/4 | 2 | DCS34J-2 | 8.90 |
| 3/4 | 3 | DCS34J-3 | 8.90 |
| 3/4 | 33 | DCS34J-33 | 9.50 |
| 3/4 | 4 | DCS34J-4 | 9.95 |
| 3/4 | 6 | DCS34J-6 | 9.50 |
| 1 | 2 | DCS1J-2 | 9.95 |
| 1 | 3 | DCS1J-3 | 9.95 |
| 1 | 33 | DCS1J-33 | 9.95 |
| 1 | 4 | DCS1J-4 | 9.95 |
| 1 | 6 | DCS1J-6 | 9.95 |
| 1-1/2 | 3 | DCS112J-3 | 15.90 |
| 1-1/2 | 4 | DCS112J-4 | 15.90 |

THREADED SHANK

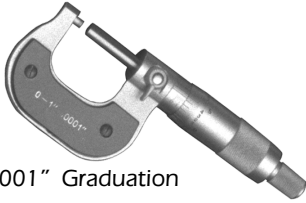


| Morse Taper Shank | Shank Thread | Tool No. | Price Each |
|-------------------|--------------|----------|------------|
| 2 | 3/8 — 24 | DCT38 | 32.98 |
| 2 | 1/2 — 20 | DCT12 | 32.98 |
| 2 | 5/8 — 16 | DCT58 | 32.98 |

PRECISION TOOLS

MICROMETERS

◆ OUTSIDE MICROMETERS



- .0001" Graduation
- Micro-Lapped carbide mirrored anvils
- Friction thimble
- Positive and wear-adjustable spindle lock
- 2" and over complete with standards
- Supplied in a fitted case
- Clear graduations on satin chrome finished sleeve

| Range of Measure Inch/Metric | Tool No. | Price Each |
|------------------------------|----------|------------|
| 0 - 1 | PRM01 | 14.95 |
| 1 - 2 | PRM12 | 19.95 |
| 2 - 3 | PRM23 | 23.50 |
| 3 - 4 | PRM34 | 26.75 |
| 4 - 5 | PRM45 | 29.75 |
| 5 - 6 | PRM56 | 34.75 |
| 0 - 25mm | PRMM25 | 14.95 |

◆ DIGITAL OUTSIDE MICROMETERS



- Carbide tip measuring faces
- Ratchet stop
- Digital counter indicates direct readings in .0001" graduation — tenths are read by means of a clearly marked Vernier Scale
- Sizes 2" and over complete with standards
- Supplied in a fitted case

| Range of Measure Inch | Tool No. | Price Each |
|-----------------------|----------|------------|
| 0 - 1 | PRDM01 | 39.00 |
| 1 - 2 | PRDM12 | 49.00 |
| 2 - 3 | PRDM23 | 59.00 |
| 3 - 4 | PRDM34 | 69.00 |

SETS



OUTSIDE MICROMETERS

| Range of Measure Inch | Pieces Per Set | Tool No. | Price Each |
|-----------------------|----------------|----------|------------|
| 0 - 3 | 3 | PRMS03 | 49.75 |
| 0 - 6 | 6 | PRMS06 | 125.00 |
| 6 - 12 | 6 | PRMS612 | 229.00 |
| 0 - 12 | 12 | PRMS012 | 289.00 |

DIGITAL OUTSIDE MICROMETERS

| Range of Measure Inch | Pieces Per Set | Tool No. | Price Each |
|-----------------------|----------------|----------|------------|
| 0 - 3 | 3 | PRDMS03 | 129.00 |

◆ DEPTH MICROMETER



TOOL NO. PRDP06

- 0 - 6" Range
- 4" Length of base
- 6 Rods
- Satin chrome finish

PRICE EACH — \$65.00

◆ 0-1"/0-25mm ELECTRONIC DIGITAL MICROMETER



TOOL NO. PRME01

- Carbide tip measuring faces
- Spindle lock
- Instant inch/metric conversion
- Large, easy to read LCD readout
- Set in chrome spindle
- Automatic power off

PRICE EACH — \$89.00

◆ INSIDE MICROMETERS

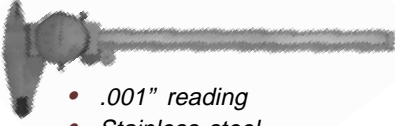


- .001" Graduation
- Ratchet stop thimble
- Chrome plated
- Supplied in fitted case

| Range of Measure Inch | Tool No. | Price Each |
|-----------------------|----------|------------|
| 0.2 - 1.2 | PRMN01 | 45.00 |
| 1 - 2 | PRMN12 | 55.00 |

PRECISION TOOLS

◆ DIAL CALIPERS



- .001" reading
- Stainless steel
- Covered rack
- .100 dial revolutions
- Supplied in a fitted case

| Range of Measure Inch | Tool No. | Price Each |
|-----------------------|----------|------------|
| 0 - 4 | PRDC04 | 22.50 |
| 0 - 6 | PRDC06 | 26.50 |
| 0 - 8 | PRDC08 | 49.50 |
| 0 - 12 | PRDC12 | 75.00 |

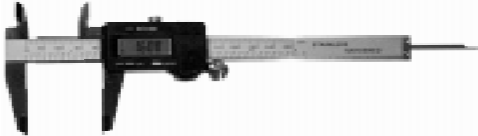
◆ VERNIER CALIPERS



- .001"/.02 mm Graduation
- Hardened stainless steel
- Satin chrome finish with clear black graduations
- Thumb lock style

| Range of Measure | Tool No. | Price Each |
|------------------|----------|------------|
| 0 - 6"/0-150 mm | PRV06 | 17.50 |
| 0 - 8"/0-200 mm | PRV08 | 24.50 |
| 0 - 12"/0-300 mm | PRV12 | 39.50 |

◆ ELECTRONIC DIGITAL CALIPERS



- Linear capacitive measuring system with LCD display.
- Thumb roller for easy movement.

ELECTRONIC DIGITAL CALIPER — 6"/150mm
TOOL NO. PRDE06
PRICE EACH — \$65.00

ELECTRONIC DIGITAL CALIPER — 8"/200mm
TOOL NO. PRDE08
PRICE EACH — \$89.00

◆ DIVIDERS AND CALIPERS



- Inside Caliper
- Outside Caliper
- Spring Divider

| Size Inch | Inside Caliper Tool No. | Outside Caliper Tool No. | Spring Divider Tool No. | Price Each |
|-----------|-------------------------|--------------------------|-------------------------|------------|
| 4 | PRCN4 | PRCT4 | PRCD4 | 2.95 |
| 6 | PRCN6 | PRCT6 | PRCD6 | 4.25 |
| 8 | PRCN8 | PRCT8 | PRCD8 | 5.50 |
| 10 | PRCN10 | PRCT10 | PRCD10 | 7.50 |
| 12 | PRCN12 | PRCT12 | PRCD12 | 10.95 |
| 18 | PRCN18 | PRCT18 | PRCD18 | 22.95 |
| 24 | PRCN24 | PRCT24 | PRCD24 | 42.50 |
| 36 | PRCN36 | PRCT36 | PRCD36 | 62.00 |

◆ PROTRACTORS



- Stainless steel
- 0° - 180° graduation on head
- Adjustable 6" blade and lock nut

| Description | Tool No. | Price Each |
|-------------|----------|------------|
| Square Head | PRPS | 9.95 |
| Round Head | PRPR | 9.95 |

3 PIECE CALIPER SET

Set includes 1 each of the following:



- Inside Caliper
- Outside Caliper
- Spring Divider

| Size Inch | Set No. | Price Each |
|-----------|---------|------------|
| 4 | PRCA4 | 8.75 |
| 6 | PRCA6 | 12.50 |
| 8 | PRCA8 | 15.95 |
| 10 | PRCA10 | 21.75 |

◆ 60° CENTER GAGE

- Stainless steel
- Satin chrome finish
- Notches have clearance slots



TOOL NO. PRCG **PRICE EACH — \$4.95**

PRECISION TOOLS

GAGES



◆ ELECTRONIC HEIGHT GAGE

- Reading $.0005"/.01mm$
- Ground and hardened stainless steel frame
- Large clear LCD display

| Range of Measure | Tool No. | Price Each |
|------------------|----------|------------|
| 0-12" | PREHG12 | 239.00 |
| 0-18" | PREHG18 | 325.00 |



◆ VERNIER HEIGHT GAGE

- Stainless steel beam and measuring slide
- Carbide tipped scriber
- Fine adjustment slide
- Reading point $.001"/.02mm$

| Range of Measure | Tool No. | Price Each |
|------------------|----------|------------|
| 0-12" | PRHG12 | 69.00 |
| 0-18" | PRHG18 | 125.00 |
| 0-24" | PRHG24 | 145.00 |



◆ DIGITAL COUNTER TWIN BEAM DIGITAL HEIGHT GAGES

- Air proof digital counter featuring a 0 reset bottom
- Dial graduation $.001"$, counter graduation
- Fine adjusting wheel and lock

| Range of Measure | Tool No. | Price Each |
|------------------|----------|------------|
| 0-12" | PRGHD12 | 129.00 |
| 0-18" | PRGHD18 | 195.00 |
| 0-24" | PRGHD24 | 299.00 |

◆ DIAL BORE GAGES

- $.0005$ Graduation
- Interchangeable anvils and necessary accessories for close tolerance I.D. measurements

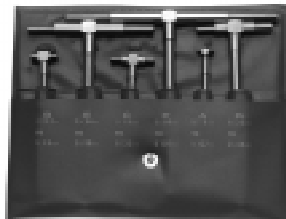


| Range of Measure | Bore Depth | No. of Anvils | Tool No. | Price Each |
|------------------|------------|---------------|----------|------------|
| 0.4 - 0.7 | 2.4 | 9 | PRBG47 | 96.00 |
| 0.7 - 1.5 | 4 | 8 | PRBG715 | 96.00 |
| 1.4 - 2.4 | 6 | 6 | PRBG1424 | 96.00 |
| 2 - 6 | 6 | 11 | PRBG26 | 96.00 |
| 6.4 - 10 | 16 | 6 | PRBG6410 | 96.00 |

◆ TELESCOPING GAGE SET

- Constant spring tension for uniform feel
- Rigid handle with self centering feature

SETNO. PRTGS06
6 Piece Set
6 Gages in a Fitted Case
Satin Chrome Finish
Range 5/16" to 6"
SET PRICE — \$24.75



◆ RECTANGULAR GAGE BLOCK SET

SETNO. PRGBS81
GRADE B

81 Piece Set

Consists of following blocks:

9 Blocks from $.1001"$ to 1.000

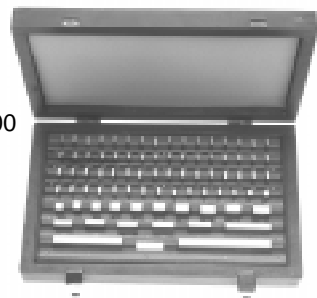
49 Blocks from $.101$ to $.149$

19 Blocks from $.050$ to $.950$

4 Blocks from 1.000 to 4.00

Supplied in fitted wood case

SET PRICE — \$189.00



PRECISION TOOLS

◆ DIAL INDICATORS



- .001 Graduations with second hand reading every .010
- Lug back with 1/4" hole interchangeable point

| Range of Measure | Tool No. | Price Each |
|------------------|----------|------------|
| 1" Travel | PRD1 | 16.75 |
| 2" Travel | PRD2 | 48.00 |

◆ DIAL TEST INDICATORS



TOOL NO. PRDT30

- .030 Measuring range
- .0005 Graduation
- Includes 2 dovetail clamps - 3/8 and 5/32 dovetails on top and back for all-around positioning

PRICE EACH—\$54.95

◆ MAGNETIC BASE INDICATOR HOLDERS



- Easy on/off switch controls
- Strong permanent magnet
- Four ground surfaces to grip including V-slot for round surfaces
- Horizontal or vertical positioning

TOOL NO. PRMB1

Without fine adjustment
PRICE EACH—\$17.95

TOOL NO. PRMB2

With fine adjustment
PRICE EACH—\$19.95

◆ COMBINATION MAGNETIC BASE AND DIAL INDICATOR



TOOL NO. PRMBD

- 1" Travel indicator
- Magnetic base with fine adjustment

PRICE EACH—\$34.00

◆ UNIVERSAL INDICATOR HOLDERS

TOOL NO. PRUH2

- Reach from 0-12" diameter
- For milling machine and jig borers
- For dial test indicators

PRICE EACH—\$22.50

TOOL NO. PRUH2DT

- With 1" dial indicator
- 1" Travel - .001 graduations

PRICE EACH—\$79.50



◆ CENTERING INDICATORS



- .0004 Graduation
- For centering a work piece on vertical or horizontal machines, external or internal diameters

TOOL NO. PRCOAX

Includes:

- 1 Restraining rod
- 1 Center point feeler
- 1 4" straight feeler
- 1 4" curved feeler
- 1 8" straight feeler
- 1 8" curved feeler
- 1 12" straight feeler
- 1 12" curved feeler

PRICE EACH—\$129.00



◆ MINI-MAGNETIC BASE INDICATOR HOLDER



TOOL NO. PRMB4

- Fine adjustment and two universal adjustments
- Ideal for very tight work areas
- Clamps all indicators with 1/8"-1" stem as well as dovetail style

PRICE EACH—\$9.95

◆ SUPER MAG UNIVERSAL MAGNETIC BASE



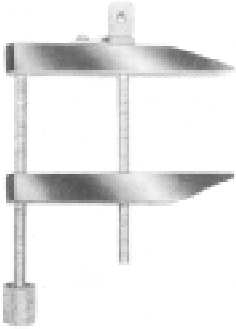
TOOL NO. PRSMB

- Zinc die cast housing
- Strong magnetic holding power

PRICE EACH—\$9.95

PRECISION TOOLS

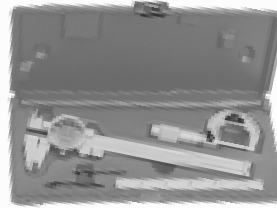
◆ TOOLMAKER'S PARALLEL CLAMP



- Hardened jaws and screws with spring tension clips
- Conforms to federal standards

| Jaw Opening | OAL | Tool No. | Price Each |
|-------------|-------|----------|------------|
| 1-1/4 | 2 | PRTC114 | 5.10 |
| 1-3/4 | 2-1/2 | PRTC134 | 5.57 |
| 2-1/4 | 3 | PRTC214 | 6.98 |
| 2-3/4 | 4 | PRTC234 | 9.02 |
| 3-1/2 | 5 | PRTC312 | 14.95 |
| 4-1/2 | 6 | PRTC412 | 19.12 |

◆ 3 PIECE MACHINIST SET



SET NO. PRMS3

Contains 1 Each:

0-1 Micrometer
.0001" Graduation, carbide tipped
6" Dial Caliper .100"

Dial revolution, stainless steel, satin chrome finish with covered rack 16" rigid rule, 4R Graduation
Supplied in fitted case

SET PRICE — \$43.50

◆ GRANITE SURFACE COMPARATOR STAND

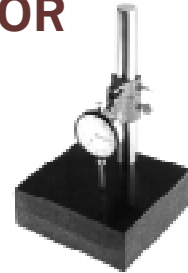


TOOL NO. PRGS6

- With fine adjustment
- 6" Square granite base

PRICE EACH — \$45.00

◆ COMBINATION GRANITE SURFACE COMPARATOR STAND



TOOL NO. PRGSD

- With 1" travel indicator

PRICE EACH — \$59.00

◆ EYE LOUPES



- Hand – Free Magnification
- Lenses made of ground and polished optical glass

| Magnification Power | Focal Length | Tool No. | Price Each |
|---------------------|--------------|----------|------------|
| 2X | 4.5"/114mm | PRMGL2 | 1.95 |
| 3X | 3.5"/89mm | PRMGL3 | 2.50 |
| 4X | 2.5"/63mm | PRMGL4 | 3.50 |
| 5X | 2.0"/50mm | PRMGL5 | 3.95 |
| 10X | 1.0"/25mm | PRMGL10 | 6.50 |

◆ MAGNIFYING READING GLASSES



- Light weight
- Edge to edge clarity
- Sturdy construction

| Length Diameter | Focal Length | Power | Tool No. | Price Each |
|-----------------|--------------|-------|----------|------------|
| 2"/50mm | 6"/15cm | 2.5X | PRMG2 | 8.95 |
| 2-1/2"/60mm | 6"/15cm | 2.5X | PRMG25 | 11.50 |
| 3"/75mm | 8"/20cm | 2.25X | PRMG3 | 14.75 |
| 4"/100mm | 8"/20cm | 2.25X | PRMG4 | 18.75 |

◆ FOLDING POCKET MAGNIFIER – TRIPLET



TOOL NO. PRMGP

- Combination of lenses produces different powers
- Magnification range of 4x, 7x, and 10x
- Focal length of 2.5", 1.5" and 1" or 6cm, 3.8cm and 2.5cm

PRICE EACH — \$8.75

◆ ILLUMINATED FLASHLIGHT MAGNIFIER



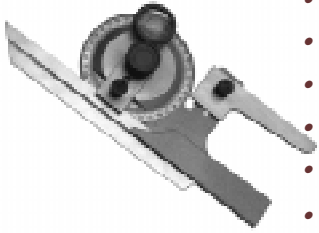
TOOL NO. PRMGF

- Works the same as a flashlight
- Magnification power 10x
- Uses 2 size C batteries (Not included)

PRICE EACH — \$26.95

PRECISION TOOLS

◆ UNIVERSAL BEVEL PROTRACTOR



TOOL NO. PRUB12

- 16" and 12" blades
- Satin chrome finish
- Minimum reading 5 minutes
- 360° Scale in 1° increments
- Optical magnifier
- Blade and protractor have independent locking provisions to allow maximum control.

PRICE EACH — \$69.00

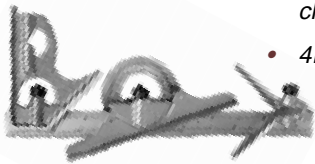
◆ HARDENED STEEL SQUARES



- Beams and blades are ground and lapped for parallelism
- Squares are true right angles, both inside and outside

| Blade Length | Beam Length | Tool No. | Price Each |
|--------------|-------------|----------|------------|
| 2 | 1-1/2 | PRQ2 | 5.95 |
| 3 | 2-1/2 | PRQ3 | 6.50 |
| 4 | 3 | PRQ4 | 6.95 |
| 6 | 4 | PRQ6 | 8.95 |
| 8 | 5 | PRQ8 | 12.50 |
| 12 | 8 | PRQ12 | 29.00 |

◆ COMBINATION SQUARE SET



- Fully hardened with chrome finished blades
- 4R graduations

SET NO. PRCS4

4 Piece Set
12" Blade with Square Head,
Center Head and Protractor Head.

SET PRICE — \$59.00

◆ 1/8" THIN STYLE STEEL PARALLEL SET



- Matched pairs
- High grade alloy steel
- Hardened and ground
- Two holes in each parallel
- Accuracy $\pm .0002"$ parallelism in height
 $\pm .0001"$ to size and height

SET NO. PRTP10

Complete Set
10 Pairs in a Fitted Box

SET PRICE — \$99.00

◆ ADJUSTABLE PARALLEL SET



Parallels consist of 2 pieces which are ducktailed

SET NO. PRAP06

6 Piece Set
Range 3/8" to 2-1/4"
Supplied in fitted case

SET PRICE — \$49.00

◆ RATCHET MACHINE COUNTERS



TOOL NO. PRMC5

- 5 Digits with rotary reset knob
- 4 Flange holes for rigid mounting
- Lever furnished with spring and can be set in any position

PRICE EACH — \$6.50

◆ CARBIDE SCRIBER



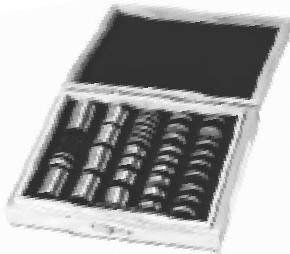
TOOL NO. PRCS6

- With pocket clip and knurled grip

PRICE EACH — \$2.99

PRECISION TOOLS

◆ SPACE BLOCK SET



- Accuracy .0001
- 3/4" Diameter, 1/4-28 I.D. Thread
- Hardened and tapped
- 4 Connecting screws included, make any length desired

SET NO. PRSB36

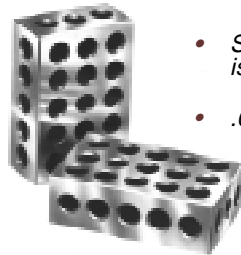
36 Piece Set

.050, .060, .0625, .070, .080, .090, .100, .101, .102, .103, .104, .105, .106, .107, .108, .109, .110, .120, .125, .130, .140, .150, .160, .170, .180, .190, .200, .300, .400, .500, .600, .700, .800, .900, 1.000
(2 Pc.)

Supplied in wood case.

SET PRICE — \$59.95

◆ 1-2-3 AND 2-4-6 BLOCKS



- Squareness of all sides is within .0001 of an inch
- .0001 - .0002 for parallelism

1-2-3 BLOCKS

SET NO. PRBS123

Contains 2 matched and hardened precision ground blocks

SET PRICE — \$22.50

2-4-6 BLOCKS

SET NO. PRBS246

Contains 2 matched and hardened precision ground blocks

SET PRICE — \$89.00

◆ PRECISION ANGLE BLOCK SET

Hardened Steel — Precision Ground



SET NO. PRABS10

10 Piece Set

Furnished in increments of:

1 Degree to 5 Degree

and 5 Degree to 30 Degree

Accurate to .0001 per inch.

Supplied in fitted wood case.

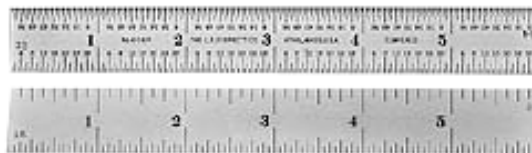
SET PRICE — \$69.00

◆ PRECISION FLEXIBLE RULES



| Length | Width | Graduation | Tool No | Price Each |
|--------|-------|-----------------------------|---------|------------|
| 6 | 1/2 | 8ths, 16ths, 32nds, 64ths | SR4R | 2.95 |
| 6 | 1/2 | 10ths, 64ths, 32nds, 100ths | SR5R | 2.95 |
| 12 | 1/2 | 1/8ths, 16ths, 32nds, 64ths | SR124R | 6.50 |
| 12 | 1/2 | 10ths, 64ths, 32nds, 100ths | SR125R | 6.50 |
| 18 | 3/4 | 8ths, 16ths, 32nds, 64ths | SR184R | 12.50 |
| 18 | 3/4 | 10ths, 64ths, 32nds, 100ths | SR185R | 12.50 |
| 24 | 3/4 | 8ths, 16ths, 32nds, 64ths | SR244R | 16.50 |
| 24 | 3/4 | 10ths, 64ths, 32nds, 100ths | SR245R | 16.50 |

◆ PRECISION RIGID RULES



| Length | Width | Graduation | Tool No | Price Each |
|--------|-------|-----------------------------|---------|------------|
| 6 | 1/2 | 8ths, 16ths, 32nds, 64ths | SRR4R | 2.95 |
| 6 | 1/2 | 10ths, 64ths, 32nds, 100ths | SRR5R | 2.95 |
| 12 | 1/2 | 1/8ths, 16ths, 32nds, 64ths | SRR124R | 6.50 |
| 12 | 1/2 | 10ths, 64ths, 32nds, 100ths | SRR125R | 6.50 |
| 18 | 3/4 | 8ths, 16ths, 32nds, 64ths | SRR184R | 12.50 |
| 18 | 3/4 | 10ths, 64ths, 32nds, 100ths | SRR185R | 12.50 |
| 24 | 3/4 | 8ths, 16ths, 32nds, 64ths | SRR244R | 16.50 |
| 24 | 3/4 | 10ths, 64ths, 32nds, 100ths | SRR245R | 16.50 |

◆ PLANER AND SHAPER GAUGE

TOOL NO. PRPSG

- Set shaper and planer tools fast and easy

- Range - 1/4" to 6-1/4"

- Base and slide are hardened and beveled to provide accurate alignment and parallelism



PRICE EACH — \$89.00

◆ CENTER PUNCHES ROUND AND SQUARE SHANKS



Hardened and tempered with ground points and knurled body for better grip.

| Size at Top of Taper | Overall Length | Round Shank | | Square Shank | |
|----------------------|----------------|-------------|------------|--------------|------------|
| | | Tool No. | Price Each | Tool No. | Price Each |
| 1/16 | 3" | PHC1 | 1.95 | PHCS1* | 2.65 |
| 5/64 | 4 | PHC2 | 2.15 | PHCS2 | 2.65 |
| 3/32 | 4 | PHC3 | 2.25 | PHCS3 | 2.65 |
| 9/64 | 4 | PHC4 | 2.35 | PHCS4 | 2.80 |
| 5/32 | 4 | PHC5 | 2.45 | PHCS5 | 3.25 |

* 1/16 Square Shank overall length is 4".

ROUND SHANK SET NO. PHC15

5 Piece Set
Contains 1 Piece of Each:
1/16, 5/64, 3/32,
9/64 and 5/32
Supplied in Pouch
SET PRICE — \$9.95

SQUARE SHANK SET NO. PHCS15

5 Piece Set
Contains 1 Piece of Each:
1/16, 5/64, 3/32,
9/64 and 5/32
Supplied in Pouch
SET PRICE — \$12.75

◆ TRANSFER PUNCH SETS

OXIDE FINISH

- Made of heat-treated tempered tool steel
- Supplied in metal stand.



| Set Number | Description | Pieces Per Set | Price Each |
|------------|---------------------------------|----------------|------------|
| PH100 | 3/32 thru 1/2 by 64th and 17/32 | 28 | 19.95 |
| PH101 | #1 - 60 | 60 | 32.50 |
| PH102 | A - Z | 26 | 29.00 |
| PH104 | 1/2 thru 1" by 64th | 33 | 98.00 |

◆ AUTOMATIC CENTER PUNCH

STEEL BODY



TOOL NO. PHA

- Hardened and ground punch
- Knurled body
- Spring loaded, no hammer required
- Adjustable tension cap

PRICE EACH — \$9.50

◆ DRIVE PIN PUNCHES

4" AND 8" OVERALL



- Hardened and tempered
- Centerless ground

| Size of Tip | 4" Overall | | 8" Overall | |
|-------------|------------|------------|------------|------------|
| | Tool No. | Price Each | Tool No. | Price Each |
| 1/16 | PHD1 | 1.80 | — | — |
| 3/32 | PHD2 | 1.80 | — | — |
| 1/8 | PHD3 | 1.80 | PHL3 | 2.85 |
| 5/32 | PHD4 | 1.80 | — | — |
| 3/16 | PHD5 | 1.80 | PHL5 | 2.85 |
| 7/32 | PHD6 | 1.80 | — | — |
| 1/4 | PHD7 | 1.80 | PHL7 | 2.85 |
| 5/16 | PHD8 | 1.80 | PHL8 | 2.85 |
| 3/8 | — | — | PHL9 | 2.85 |

Punch Diameter point is .005 undersize of nominal tip.

4" OVERALL SET NO. PHD18

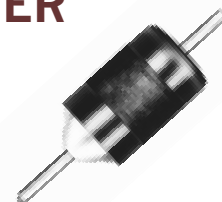
8 Piece Set
Contains 1 Piece of Each:
1/16, 3/32, 1/8, 5/32, 3/16,
7/32, 1/4 and 5/16
Supplied in Pouch
SET PRICE — \$13.50

8" OVERALL SET NO. PHL15

5 Piece Set
Contains 1 Piece of Each:
1/8, 3/16, 1/4, 5/16 and 3/8
Supplied in Pouch
SET PRICE — \$13.50

◆ UNIVERSAL TRANSFER CENTER PUNCH AND ALIGNER

- All parts hardened steel
- For perfect center hole alignment
- Precision ground punch
- Knurled body



Accommodates itself automatically to accurately transfer center holes within range of punch.

| Range of Measure | Tool No. | Price Each |
|------------------|----------|------------|
| 3/16 to 5/8 | PHUA1 | 12.95 |
| 3/16 to 1-3/16 | PHUA2 | 16.95 |

◆ CENTER PUNCH WITH MAGNIFIER

TOOL NO. PHM

- Small powerful magnifier helps locate center

PRICE EACH — \$12.95



ER SPRING COLLETS



- The only clamping collet system for combined milling, drilling, reaming, tapping and boring operations.
- Wide holding range allows for fewer collets and changes.
- Unique self-releasing system eliminates sticking.
- These collets allow for machining in tight locations with reduced outside nose diameter.

FRACTIONAL SIZES

ER11

| Size | Collet Range | Tool No. | Price Each |
|------|--------------|----------|------------|
| 1/32 | .020 - .040 | ER11-132 | 17.50 |
| 1/16 | .040 - .080 | ER11-116 | 17.50 |
| 3/32 | .080 - .120 | ER11-332 | 17.50 |
| 1/8 | .120 - .160 | ER11-18 | 17.50 |
| 3/16 | .160 - .200 | ER11-316 | 17.50 |
| 7/32 | .200 - .236 | ER11-732 | 17.50 |
| 1/4 | .236 - .275 | ER11-14 | 17.50 |

ER16

| Size | Collet Range | Tool No. | Price Each |
|-------|--------------|-----------|------------|
| 1/32 | .020 - .040 | ER16-132 | 17.50 |
| 1/16 | .040 - .080 | ER16-116 | 17.50 |
| 3/32 | .080 - .120 | ER16-332 | 17.50 |
| 1/8 | .120 - .160 | ER16-18 | 17.50 |
| 3/16 | .160 - .200 | ER16-316 | 17.50 |
| 7/32 | .200 - .236 | ER16-732 | 17.50 |
| 1/4 | .236 - .275 | ER16-14 | 17.50 |
| 5/16 | .275 - .315 | ER16-516 | 17.50 |
| 11/32 | .315 - .354 | ER16-1132 | 17.50 |
| 3/8 | .354 - .393 | ER16-38 | 17.50 |

ER20

| Size | Collet Range | Tool No. | Price Each |
|-------|--------------|-----------|------------|
| 1/16 | .040 - .080 | ER20-116 | 17.50 |
| 3/32 | .080 - .120 | ER20-332 | 17.50 |
| 1/8 | .120 - .160 | ER20-18 | 17.50 |
| 3/16 | .160 - .200 | ER20-316 | 17.50 |
| 7/32 | .200 - .236 | ER20-732 | 17.50 |
| 1/4 | .236 - .275 | ER20-14 | 17.50 |
| 5/16 | .275 - .315 | ER20-516 | 17.50 |
| 11/32 | .315 - .354 | ER20-1132 | 17.50 |
| 3/8 | .354 - .393 | ER20-38 | 17.50 |
| 13/32 | .393 - .433 | ER20-1332 | 17.50 |
| 7/16 | .433 - .472 | ER20-716 | 17.50 |
| 1/2 | .472 - .511 | ER20-12 | 17.50 |

ER25

| Size | Collet Range | Tool No. | Price Each |
|-------|--------------|-----------|------------|
| 1/16 | .040 - .080 | ER25-116 | 17.50 |
| 3/32 | .080 - .120 | ER25-332 | 17.50 |
| 1/8 | .120 - .160 | ER25-18 | 17.50 |
| 3/16 | .160 - .200 | ER25-316 | 17.50 |
| 7/32 | .200 - .236 | ER25-732 | 17.50 |
| 1/4 | .236 - .275 | ER25-14 | 17.50 |
| 5/16 | .275 - .315 | ER25-516 | 17.50 |
| 11/32 | .315 - .354 | ER25-1132 | 17.50 |
| 3/8 | .354 - .393 | ER25-38 | 17.50 |
| 13/32 | .393 - .433 | ER25-1332 | 17.50 |
| 7/16 | .433 - .472 | ER25-716 | 17.50 |
| 1/2 | .472 - .511 | ER25-12 | 17.50 |
| 17/32 | .511 - .551 | ER25-1732 | 17.50 |
| 9/16 | .551 - .590 | ER25-916 | 17.50 |

ER32

| Size | Collet Range | Tool No. | Price Each |
|-------|--------------|-----------|------------|
| 3/32 | .080 - .120 | ER32-332 | 21.00 |
| 1/8 | .120 - .160 | ER32-18 | 21.00 |
| 3/16 | .160 - .200 | ER32-316 | 21.00 |
| 7/32 | .200 - .236 | ER32-732 | 21.00 |
| 1/4 | .236 - .275 | ER32-14 | 21.00 |
| 5/16 | .275 - .315 | ER32-516 | 21.00 |
| 11/32 | .315 - .354 | ER32-1132 | 21.00 |
| 3/8 | .354 - .393 | ER32-38 | 21.00 |
| 13/32 | .393 - .433 | ER32-1332 | 21.00 |
| 7/16 | .433 - .472 | ER32-716 | 21.00 |
| 1/2 | .472 - .511 | ER32-12 | 21.00 |
| 17/32 | .511 - .551 | ER32-1732 | 21.00 |
| 9/16 | .551 - .590 | ER32-916 | 21.00 |
| 5/8 | .590 - .629 | ER32-58 | 21.00 |
| 21/32 | .629 - .669 | ER32-2132 | 21.00 |
| 11/16 | .669 - .708 | ER32-1116 | 21.00 |
| 3/4 | .708 - .751 | ER32-34 | 21.00 |

ER40

| Size | Collet Range | Tool No. | Price Each |
|-------|--------------|-----------|------------|
| 1/8 | .120 - .160 | ER40-18 | 24.50 |
| 3/16 | .160 - .200 | ER40-316 | 24.50 |
| 7/32 | .200 - .236 | ER40-732 | 24.50 |
| 1/4 | .236 - .275 | ER40-14 | 24.50 |
| 5/16 | .275 - .315 | ER40-516 | 24.50 |
| 11/32 | .315 - .354 | ER40-1132 | 24.50 |
| 3/8 | .354 - .393 | ER40-38 | 24.50 |
| 13/32 | .393 - .433 | ER40-1332 | 24.50 |
| 7/16 | .433 - .472 | ER40-716 | 24.50 |
| 1/2 | .472 - .511 | ER40-12 | 24.50 |
| 17/32 | .511 - .551 | ER40-1732 | 24.50 |
| 9/16 | .551 - .590 | ER40-916 | 24.50 |
| 5/8 | .590 - .629 | ER40-58 | 24.50 |
| 21/32 | .629 - .669 | ER40-2132 | 24.50 |
| 11/16 | .669 - .708 | ER40-1116 | 24.50 |
| 3/4 | .708 - .751 | ER40-34 | 24.50 |
| 25/32 | .751 - .787 | ER40-2532 | 24.50 |
| 13/16 | .787 - .826 | ER40-1316 | 24.50 |
| 27/32 | .826 - .866 | ER40-2732 | 24.50 |
| 7/8 | .866 - .905 | ER40-78 | 24.50 |
| 15/16 | .905 - .944 | ER40-1516 | 24.50 |
| 31/32 | .944 - .984 | ER40-3132 | 24.50 |
| 1 | .984 - 1.02 | ER40-1 | 24.50 |

METRIC SIZES

ERM11

| Size mm | Collet Range | Tool No. | Price Each |
|---------|--------------|----------|------------|
| 1 | .5 - 1 | ERM11-1 | 17.50 |
| 2 | 1 - 2 | ERM11-2 | 17.50 |
| 3 | 2 - 3 | ERM11-3 | 17.50 |
| 4 | 3 - 4 | ERM11-4 | 17.50 |
| 5 | 4 - 5 | ERM11-5 | 17.50 |
| 6 | 5 - 6 | ERM11-6 | 17.50 |
| 7 | 6 - 7 | ERM11-7 | 17.50 |

ERM16

| Size mm | Collet Range | Tool No. | Price Each |
|---------|--------------|----------|------------|
| 1 | .5 - 1 | ERM16-1 | 17.50 |
| 2 | 1 - 2 | ERM16-2 | 17.50 |
| 3 | 2 - 3 | ERM16-3 | 17.50 |
| 4 | 3 - 4 | ERM16-4 | 17.50 |
| 5 | 4 - 5 | ERM16-5 | 17.50 |
| 6 | 5 - 6 | ERM16-6 | 17.50 |
| 7 | 6 - 7 | ERM16-7 | 17.50 |
| 8 | 7 - 8 | ERM16-8 | 17.50 |
| 9 | 8 - 9 | ERM16-9 | 17.50 |
| 10 | 9 - 10 | ERM16-10 | 17.50 |

ERM20

| Size mm | Collet Range | Tool No. | Price Each |
|---------|--------------|----------|------------|
| 2 | 1 - 2 | ERM20-2 | 17.50 |
| 3 | 2 - 3 | ERM20-3 | 17.50 |
| 4 | 3 - 4 | ERM20-4 | 17.50 |
| 5 | 4 - 5 | ERM20-5 | 17.50 |
| 6 | 5 - 6 | ERM20-6 | 17.50 |
| 7 | 6 - 7 | ERM20-7 | 17.50 |
| 8 | 7 - 8 | ERM20-8 | 17.50 |
| 9 | 8 - 9 | ERM20-9 | 17.50 |
| 10 | 9 - 10 | ERM20-10 | 17.50 |
| 11 | 10 - 11 | ERM20-11 | 17.50 |
| 12 | 11 - 12 | ERM20-12 | 17.50 |

ERM25

| Size mm | Collet Range | Tool No. | Price Each |
|---------|--------------|----------|------------|
| 3 | 2 - 3 | ERM25-3 | 17.50 |
| 4 | 3 - 4 | ERM25-4 | 17.50 |
| 5 | 4 - 5 | ERM25-5 | 17.50 |
| 6 | 5 - 6 | ERM25-6 | 17.50 |
| 7 | 6 - 7 | ERM25-7 | 17.50 |
| 8 | 7 - 8 | ERM25-8 | 17.50 |
| 9 | 8 - 9 | ERM25-9 | 17.50 |
| 10 | 9 - 10 | ERM25-10 | 17.50 |
| 11 | 10 - 11 | ERM25-11 | 17.50 |
| 12 | 11 - 12 | ERM25-12 | 17.50 |
| 13 | 12 - 13 | ERM25-13 | 17.50 |
| 14 | 13 - 14 | ERM25-14 | 17.50 |
| 15 | 14 - 15 | ERM25-15 | 17.50 |

SETS

ER SPRING COLLET SETS

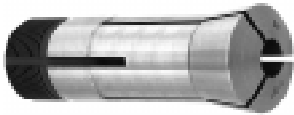
| Set Description | Set No. | Price Each |
|---|---------|------------|
| • 1/32, 1/16, 3/32, 1/8, 3/16, 7/32, 1/4 7 piece set in wood box | ER11S | 122.50 |
| • 1/8, 3/16, 7/32, 1/4, 5/16, 11/32, 3/8 7 piece set in wood box | ER16S | 122.50 |
| • 1/8, 3/16, 7/32, 1/4, 5/16, 11/32, 3/8, 13/32, 7/16, 1/2 10 piece set in wood box | ER20S | 175.00 |
| • 1/8, 3/16, 7/32, 1/4, 5/16, 11/32, 3/8, 13/32, 7/16, 1/2, 17/32, 9/16 12 piece set in wood box | ER25S | 210.00 |
| • 1/8, 3/16, 1/4, 5/16, 3/8, 13/32, 7/16, 9/16, 5/8, 11/16, 3/4 11 piece set in wood box | ER32S | 225.00 |
| • 1/8, 3/16, 1/4, 5/16, 3/8, 13/32, 7/16, 9/16, 5/8, 11/16, 3/4, 13/16, 7/8, 15/16, 1 15 piece set in wood box | ER40S | 360.00 |

ERM32

| Size mm | Collet Range | Tool No. | Price Each |
|---------|--------------|----------|------------|
| 3 | 2 - 3 | ERM32-3 | 21.00 |
| 4 | 3 - 4 | ERM32-4 | 21.00 |
| 5 | 4 - 5 | ERM32-5 | 21.00 |
| 6 | 5 - 6 | ERM32-6 | 21.00 |
| 7 | 6 - 7 | ERM32-7 | 21.00 |
| 8 | 7 - 8 | ERM32-8 | 21.00 |
| 9 | 8 - 9 | ERM32-9 | 21.00 |
| 10 | 9 - 10 | ERM32-10 | 21.00 |
| 11 | 10 - 11 | ERM32-11 | 21.00 |
| 12 | 11 - 12 | ERM32-12 | 21.00 |
| 13 | 12 - 13 | ERM32-13 | 21.00 |
| 14 | 13 - 14 | ERM32-14 | 21.00 |
| 15 | 14 - 15 | ERM32-15 | 21.00 |
| 16 | 15 - 16 | ERM32-16 | 21.00 |
| 17 | 16 - 17 | ERM32-17 | 21.00 |
| 18 | 17 - 18 | ERM32-18 | 21.00 |
| 19 | 18 - 19 | ERM32-19 | 21.00 |
| 20 | 19 - 20 | ERM32-20 | 21.00 |

ERM40

| Size mm | Collet Range | Tool No. | Price Each |
|---------|--------------|----------|------------|
| 4 | 3 - 4 | ERM40-4 | 24.50 |
| 5 | 4 - 5 | ERM40-5 | 24.50 |
| 6 | 5 - 6 | ERM40-6 | 24.50 |
| 7 | 6 - 7 | ERM40-7 | 24.50 |
| 8 | 7 - 8 | ERM40-8 | 24.50 |
| 9 | 8 - 9 | ERM40-9 | 24.50 |
| 10 | 9 - 10 | ERM40-10 | 24.50 |
| 11 | 10 - 11 | ERM40-11 | 24.50 |
| 12 | 11 - 12 | ERM40-12 | 24.50 |
| 13 | 12 - 13 | ERM40-13 | 24.50 |
| 14 | 13 - 14 | ERM40-14 | 24.50 |
| 15 | 14 - 15 | ERM40-15 | 24.50 |
| 16 | 15 - 16 | ERM40-16 | 24.50 |
| 17 | 16 - 17 | ERM40-17 | 24.50 |
| 18 | 17 - 18 | ERM40-18 | 24.50 |
| 19 | 18 - 19 | ERM40-19 | 24.50 |
| 20 | 19 - 20 | ERM40-20 | 24.50 |
| 21 | 20 - 21 | ERM40-21 | 24.50 |
| 22 | 21 - 22 | ERM40-22 | 24.50 |
| 23 | 22 - 23 | ERM40-23 | 24.50 |
| 24 | 23 - 24 | ERM40-24 | 24.50 |
| 25 | 24 - 25 | ERM40-25 | 24.50 |
| 26 | 25 - 26 | ERM40-26 | 24.50 |



◆ 5C PRECISION ROUND COLLETS

SET NO. CKS-1

6 Piece Set
Contains 1 piece of each:
1/8, 1/4, 3/8, 1/2, 5/8, 3/4
Supplied in metal stand
SET PRICE \$76.50

| Size | Tool No. | Price Each |
|-------|----------|------------|
| 1/16 | CK116 | 12.80 |
| 5/64 | CK564 | 12.80 |
| 3/32 | CK332 | 12.80 |
| 7/64 | CK764 | 12.80 |
| 1/8 | CK18 | 12.80 |
| 9/64 | CK964 | 12.80 |
| 5/32 | CK532 | 12.80 |
| 11/64 | CK1164 | 12.80 |
| 3/16 | CK316 | 12.80 |
| 13/64 | CK1364 | 12.80 |
| 7/32 | CK732 | 12.80 |
| 15/64 | CK1564 | 12.80 |
| 1/4 | CK14 | 12.80 |
| 17/64 | CK1764 | 12.80 |
| 9/32 | CK932 | 12.80 |
| 19/64 | CK1964 | 12.80 |
| 5/16 | CK516 | 12.80 |
| 21/64 | CK2164 | 12.80 |
| 11/32 | CK1132 | 12.80 |
| 23/64 | CK2364 | 12.80 |
| 3/8 | CK38 | 12.80 |
| 25/64 | CK2564 | 12.80 |
| 13/32 | CK1332 | 12.80 |

SET NO. CKS-2

18 Piece Set
Contains 1 piece of each:
1/16 - 1-1/8 by 16ths
Supplied in metal stand
SET PRICE \$249.00

SET NO. CKS-3

30 Piece Set
Contains 1 piece of each:
1/16 - 13/16 by 32nds
and 7/8 - 1-1/8 by 16ths
Supplied in metal stand
SET PRICE \$398.00

| Size | Tool No. | Price Each |
|-------|----------|------------|
| 27/64 | CK2764 | 12.80 |
| 7/16 | CK716 | 12.80 |
| 29/64 | CK2964 | 12.80 |
| 15/32 | CK1532 | 12.80 |
| 31/64 | CK3164 | 12.80 |
| 1/2 | CK12 | 12.80 |
| 33/64 | CK3364 | 12.80 |
| 17/32 | CK1732 | 12.80 |
| 35/64 | CK3564 | 12.80 |
| 9/16 | CK916 | 12.80 |
| 37/64 | CK3764 | 12.80 |
| 19/32 | CK1932 | 12.80 |
| 39/64 | CK3964 | 12.80 |
| 5/8 | CK58 | 12.80 |
| 41/64 | CK4164 | 12.80 |
| 21/32 | CK2132 | 12.80 |
| 43/64 | CK4364 | 12.80 |
| 11/16 | CK1116 | 12.80 |
| 45/64 | CK4564 | 12.80 |
| 23/32 | CK2332 | 12.80 |
| 47/64 | CK4764 | 12.80 |
| 3/4 | CK34 | 12.80 |
| 49/64 | CK4964 | 12.80 |

| Size | Tool No. | Price Each |
|--------|----------|------------|
| 25/32 | CK2532 | 12.80 |
| 51/64 | CK5164 | 12.80 |
| 13/16 | CK1316 | 12.80 |
| 53/64 | CK5364 | 12.80 |
| 27/32 | CK2732 | 12.80 |
| 55/64 | CK5564 | 12.80 |
| 7/8 | CK78 | 12.80 |
| 57/64 | CK5764 | 12.80 |
| 29/32 | CK2932 | 12.80 |
| 59/64 | CK5964 | 12.80 |
| 15/16 | CK1516 | 12.80 |
| 61/64 | CK6164 | 12.80 |
| 31/32 | CK3132 | 12.80 |
| 63/64 | CK6364 | 12.80 |
| 1 | CK10 | 12.80 |
| 1-1/64 | CK164-1 | 12.80 |
| 1-1/32 | CK132-1 | 12.80 |
| 1-3/64 | CK364-1 | 12.80 |
| 1-1/16 | CK116-1 | 12.80 |
| 1-5/64 | CK564-1 | 12.80 |
| 1-3/32 | CK332-1 | 12.80 |
| 1-7/64 | CK764-1 | 12.80 |
| 1-1/8 | CK118-1 | 12.80 |

5C COLLET RACK

TOOL NO CZ5C

Holds 30 Collets
All Metal

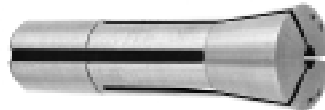
PRICE EACH \$23.50

| 5C COLLET STOP | |
|----------------|------------|
| Tool No. | Price Each |
| CKUK | 14.85 |

| ADJ. THREADED STOP FOR 5C COLLETS | |
|-----------------------------------|------------|
| Tool No. | Price Each |
| CKAT | 4.95 |

| 5C EMERGENCY COLLETS | | | |
|----------------------|-------|---------|------------|
| Collet Style | Type | Tool No | Price Each |
| 5C | Steel | CKES | 16.75 |
| 5C | Brass | CKEB | 35.95 |

◆ R8 PRECISION ROUND COLLETS



SET NO. R8CS-1

6 Piece Set
Contains 1 piece of each:
1/8, 1/4, 3/8, 1/2, 5/8, 3/4
Supplied in wood block
SET PRICE \$76.00

| Size | Tool No. | Price Each |
|-------|----------|------------|
| 1/16 | R8C116 | 12.80 |
| 3/32 | R8C332 | 12.80 |
| 1/8 | R8C18 | 12.80 |
| 5/32 | R8C532 | 12.80 |
| 3/16 | R8C316 | 12.80 |
| 7/32 | R8C732 | 12.80 |
| 1/4 | R8C14 | 12.80 |
| 9/32 | R8C932 | 12.80 |
| 5/16 | R8C516 | 12.80 |
| 11/32 | R8C1132 | 12.80 |
| 3/8 | R8C38 | 12.80 |
| 13/32 | R8C1332 | 12.80 |
| 7/16 | R8C716 | 12.80 |
| 15/32 | R8C1532 | 12.80 |

SET NO. R8CS-2

14 Piece Set
Contains 1 piece of each:
1/16 thru 7/8 by 16ths
Supplied in metal stand
SET PRICE \$198.00

| Size | Tool No. | Price Each |
|-------|----------|------------|
| 1/2 | R8C12 | 12.80 |
| 17/32 | R8C1732 | 12.80 |
| 9/16 | R8C916 | 12.80 |
| 19/32 | R8C1932 | 12.80 |
| 5/8 | R8C58 | 12.80 |
| 21/32 | R8C2132 | 12.80 |
| 11/16 | R8C1116 | 12.80 |
| 23/32 | R8C2332 | 12.80 |
| 3/4 | R8C34 | 12.80 |
| 25/32 | R8C2532 | 12.80 |
| 13/16 | R8C1316 | 12.80 |
| 27/32 | R8C2732 | 12.80 |
| 7/8 | R8C78 | 12.80 |

SET NO. R8CS-3

27 Piece Set
Contains 1 piece of each:
1/16 thru 7/8 by 32nds
Supplied in 2 metal stands
SET PRICE \$384.00

R-8 COLLET RACK

TOOL NO CZR8

Holds 16 Collets
All Metal
PRICE EACH \$23.50

◆ R8 METRIC COLLETS

| Size m m | Tool No. | Price Each |
|-------------|----------|------------|
| 2 | R8CM2 | 14.90 |
| 3 | R8CM3 | 14.90 |
| 4 | R8CM4 | 14.90 |
| 5 | R8CM5 | 14.90 |
| 6 | R8CM6 | 14.90 |
| 7 | R8CM7 | 14.90 |
| 8 | R8CM8 | 14.90 |
| 9 | R8CM9 | 14.90 |
| 10 | R8CM10 | 14.90 |
| 11 | R8CM11 | 14.90 |
| 12 | R8CM12 | 14.90 |
| 13 | R8CM13 | 14.90 |
| 14 | R8CM14 | 14.90 |
| 15 | R8CM15 | 14.90 |
| 16 | R8CM16 | 14.90 |
| 17 | R8CM17 | 14.90 |
| 18 | R8CM18 | 14.90 |
| 19 | R8CM19 | 14.90 |
| 20 | R8CM20 | 14.90 |

R-8 EMERGENCY COLLETS

Steel Type

TOOL NO. R8CES

PRICE EACH \$26.95

SET NO R8CM

19 Piece Set

Contains 2mm - 20mm by 1mm

Supplied in stand

SET PRICE \$279.00



◆ DOUBLE ANGLE SPRING COLLETS 180°

| Size | Tool No. | Price Each |
|-------|----------|------------|
| 1/8 | DA-18 | 19.95 |
| 9/64 | DA-964 | 19.95 |
| 5/32 | DA-532 | 19.95 |
| 11/64 | DA-1164 | 19.95 |
| 3/16 | DA-316 | 19.95 |
| 13/64 | DA-1364 | 19.95 |
| 7/32 | DA-732 | 19.95 |
| 15/64 | DA-1564 | 19.95 |
| 1/4 | DA-14 | 15.50 |
| 17/64 | DA-1764 | 15.50 |
| 9/32 | DA-932 | 15.50 |
| 19/64 | DA-1964 | 15.50 |
| 5/16 | DA-516 | 15.50 |
| 21/64 | DA-2164 | 15.50 |

| Size | Tool No. | Price Each |
|-------|----------|------------|
| 11/32 | DA-1132 | 15.50 |
| 23/64 | DA-2364 | 15.50 |
| 3/8 | DA-38 | 15.50 |
| 25/64 | DA-2564 | 15.50 |
| 13/32 | DA-1332 | 15.50 |
| 27/64 | DA-2764 | 15.50 |
| 7/16 | DA-716 | 15.50 |
| 29/64 | DA-2964 | 15.50 |
| 15/32 | DA-1532 | 15.50 |
| 31/64 | DA-3164 | 15.50 |
| 1/2 | DA-12 | 15.50 |
| 33/64 | DA-3364 | 15.50 |
| 17/32 | DA-1732 | 15.50 |
| 35/64 | DA-3564 | 15.50 |

| Size | Tool No. | Price Each |
|-------|----------|------------|
| 9/16 | DA-916 | 15.50 |
| 37/64 | DA-3764 | 15.50 |
| 19/32 | DA-1932 | 15.50 |
| 39/64 | DA-3964 | 15.50 |
| 5/8 | DA-58 | 15.50 |
| 41/64 | DA-4164 | 15.50 |
| 21/32 | DA-2132 | 15.50 |
| 43/64 | DA-4364 | 15.50 |
| 11/16 | DA-1116 | 15.50 |
| 45/64 | DA-4564 | 15.50 |
| 23/32 | DA-2332 | 15.50 |
| 47/64 | DA-4764 | 15.50 |
| 3/4 | DA-34 | 15.50 |

SETS

SET NO. DA17S

17 Piece Set;

1/4 - 3/4 by 32nds

in wood box

SET PRICE — \$259.00

SET NO. DA33S

33 Piece Set;

1/4 - 3/4 by 64ths

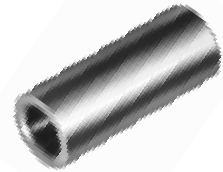
in wood box

SET PRICE — \$510.00



DRILL JIG BUSHINGS

HEADLESS PRESS FIT — TYPE "P"



Drill Bushings are used for permanent press fit installations. When used as a drill guide, accurate hole size is maintained while eliminating bending and wandering on the workpiece.

Please inquire for quantity discount.

Large stock for fast delivery.

FRACTIONAL SIZES

| In-side Dia. | Out-side Dia. | Price Each | | | | | | | | | |
|--------------|---------------|----------------|-------|-------|-------|------|-------|-------|-------|-------|-------|
| | | Overall Length | | | | | | | | | |
| | | 1/4 | 5/16 | 3/8 | 1/2 | 5/8 | 3/4 | 1 | 1-3/8 | 1-3/4 | 2-1/8 |
| 1/32 | 5/32 | 19.09 | 19.85 | 20.20 | 20.70 | — | — | — | — | — | — |
| 1/32 | 13/64 | 19.09 | 19.85 | 20.20 | 20.70 | — | 22.25 | — | — | — | — |
| 3/64 | 5/32 | 19.09 | 19.85 | 20.20 | 20.70 | — | 22.25 | — | — | — | — |
| 3/64 | 13/64 | 19.09 | 19.85 | 20.20 | 20.70 | — | 22.25 | — | — | — | — |
| 1/16 | 3/16 | 9.16 | 9.31 | 9.45 | 9.60 | — | 10.71 | — | — | — | — |
| 1/16 | 13/64 | 9.16 | 9.31 | 9.45 | 9.60 | — | 10.71 | — | — | — | — |
| 5/64 | 3/16 | 7.10 | 7.95 | 8.45 | 8.75 | 9.15 | 9.40 | — | — | — | — |
| 5/64 | 13/64 | 7.10 | 7.95 | 8.45 | 8.75 | — | 9.60 | 10.44 | 14.69 | — | — |
| 3/32 | 3/16 | — | 7.95 | 8.45 | 8.75 | — | 9.60 | — | — | — | — |
| 3/32 | 13/64 | 7.10 | 7.95 | 8.45 | 8.75 | — | 9.60 | 10.44 | — | — | — |
| 7/64 | 1/4 | 6.50 | 6.90 | 7.50 | 7.95 | 8.45 | 8.89 | 9.85 | 15.55 | — | — |
| 1/8 | 1/4 | 6.50 | 6.90 | 7.50 | 7.95 | 8.45 | 8.89 | 9.85 | 15.55 | — | — |
| 1/8 | 5/16 | 5.40 | 5.72 | 6.00 | 7.95 | — | 6.75 | 7.10 | — | — | — |
| 9/64 | 1/4 | 6.50 | 6.90 | 7.50 | 7.95 | 8.45 | 8.89 | 9.85 | 15.55 | — | — |
| 9/64 | 5/16 | 5.40 | 5.72 | 6.00 | 6.25 | — | 6.75 | 7.10 | 10.44 | 13.15 | — |
| 5/32 | 5/16 | 5.40 | 5.72 | 6.00 | 6.25 | — | 6.75 | 7.10 | 10.44 | — | — |
| 11/64 | 5/16 | 5.40 | 5.72 | 6.00 | 6.25 | 6.50 | 6.75 | 7.10 | — | — | — |
| 3/16 | 5/16 | 5.40 | 5.72 | 6.00 | 6.25 | — | 6.75 | 7.10 | 10.44 | — | — |
| 3/16 | 13/32 | 4.71 | 4.87 | 5.30 | 5.40 | — | 6.00 | 6.90 | 7.95 | 9.85 | — |
| 3/16 | 1/2 | 4.71 | 4.87 | 5.30 | 5.40 | — | 6.00 | 6.90 | 7.95 | 9.85 | — |
| 13/64 | 3/8 | 4.71 | 4.87 | 5.30 | 5.40 | 5.72 | 6.00 | 6.90 | — | — | — |
| 13/64 | 13/32 | 4.71 | 4.87 | 5.30 | 5.40 | — | 6.00 | 6.90 | 7.95 | 9.85 | — |
| 13/64 | 1/2 | 4.71 | 4.87 | 5.30 | 5.40 | — | 6.00 | 6.90 | 7.95 | 9.85 | — |
| 7/32 | 3/8 | 4.71 | 4.87 | 5.30 | 5.40 | 5.72 | 6.00 | 6.90 | — | — | — |
| 7/32 | 13/32 | 4.71 | 4.87 | 5.30 | 5.40 | — | 6.00 | 6.90 | 7.95 | — | — |
| 7/32 | 1/2 | 4.71 | 4.87 | 5.30 | 5.40 | — | 6.00 | 6.90 | 7.95 | 9.85 | — |
| 15/64 | 13/32 | 4.71 | 4.87 | 5.30 | — | — | 6.00 | 6.90 | 7.95 | 9.85 | — |
| 15/64 | 7/16 | 4.71 | 4.87 | 5.30 | 5.40 | 5.72 | 6.00 | 6.90 | — | — | — |
| 15/64 | 1/2 | 4.71 | 4.87 | 5.30 | 5.40 | — | 6.00 | 6.90 | 7.95 | 9.85 | — |
| 1/4 | 13/32 | 4.71 | 4.87 | 5.30 | 5.40 | — | 6.00 | 6.90 | 7.95 | 9.85 | — |
| 1/4 | 7/16 | 4.71 | 4.87 | 5.30 | 5.40 | 5.72 | 6.00 | 6.90 | — | — | — |
| 1/4 | 1/2 | 4.71 | 4.87 | 5.30 | 5.40 | — | 6.00 | 6.90 | 7.95 | 9.85 | — |
| 17/64 | 7/16 | 4.71 | 4.87 | 5.30 | 5.40 | 5.72 | 6.00 | 6.90 | — | — | — |
| 17/64 | 1/2 | 4.71 | 4.87 | 5.30 | — | — | 6.00 | 6.90 | — | 9.85 | — |
| 9/32 | 7/16 | 4.71 | 4.87 | 5.30 | 5.40 | 5.72 | 6.00 | 6.90 | — | — | — |
| 9/32 | 1/2 | 4.71 | 4.87 | 5.30 | 5.40 | — | 6.00 | 6.90 | 7.95 | 9.85 | — |
| 19/64 | 9/16 | 5.40 | 4.71 | 4.95 | 4.95 | 5.30 | 5.40 | 5.72 | — | — | — |
| 5/16 | 1/2 | — | — | — | 5.40 | — | 5.40 | — | — | — | — |
| 5/16 | 9/16 | 5.40 | 4.71 | 4.95 | 4.95 | — | 5.40 | 5.72 | — | — | — |
| 5/16 | 5/8 | 5.40 | 4.71 | 4.95 | 4.95 | — | — | 5.72 | — | 8.89 | — |
| 21/64 | 9/16 | 5.40 | 4.71 | 4.95 | 4.95 | — | — | 5.72 | — | — | — |
| 21/64 | 5/8 | 5.40 | 4.71 | 4.95 | 4.95 | — | 5.30 | 5.72 | 7.80 | 8.89 | — |
| 11/32 | 9/16 | 5.40 | 4.71 | 4.95 | 4.95 | — | — | 5.72 | — | — | — |
| 11/32 | 5/8 | 5.40 | 4.71 | 4.95 | 4.95 | — | 5.30 | 5.72 | 7.80 | 8.89 | — |
| 11/32 | 3/4 | 5.72 | 4.87 | 5.40 | 5.40 | 5.72 | 5.72 | 6.25 | 7.95 | 9.15 | — |
| 23/64 | 5/8 | 5.40 | 4.71 | 4.95 | — | — | 5.30 | 5.72 | 7.80 | 8.89 | — |
| 23/64 | 3/4 | 5.72 | 4.87 | 5.40 | 5.40 | 5.72 | 5.72 | 6.25 | 7.95 | 9.15 | — |
| 3/8 | 5/8 | 5.40 | 4.71 | 4.95 | 4.95 | 5.72 | 5.30 | 5.72 | 7.80 | 8.89 | — |
| 3/8 | 3/4 | 5.72 | 4.87 | 5.40 | 5.40 | 5.72 | 5.72 | 6.25 | 7.95 | 9.15 | — |
| 25/64 | 5/8 | 5.40 | 4.71 | 4.95 | 4.95 | 5.72 | 5.30 | 6.25 | 7.80 | 8.89 | — |
| 25/64 | 3/4 | 5.72 | 4.87 | 5.40 | 5.40 | 5.72 | — | 6.25 | 7.95 | 9.15 | — |
| 13/32 | 5/8 | 5.40 | 4.71 | 4.95 | 4.95 | — | 5.30 | 5.72 | 7.80 | — | — |
| 13/32 | 3/4 | 5.72 | 4.87 | 5.40 | 5.40 | 5.72 | 5.72 | 6.25 | 7.95 | 9.15 | — |
| 27/64 | 5/8 | 5.40 | 4.71 | 5.40 | 4.95 | 5.72 | 5.30 | 6.25 | 7.80 | 8.89 | — |
| 27/64 | 3/4 | 5.72 | 4.87 | 5.40 | 5.40 | — | 5.72 | 6.25 | 7.95 | 9.15 | — |
| 7/16 | 5/8 | 5.40 | 4.71 | 4.95 | 4.95 | — | 5.30 | 6.25 | 7.80 | 8.89 | — |
| 7/16 | 3/4 | 5.72 | 4.87 | 5.40 | 5.40 | 5.72 | 5.72 | 6.25 | 7.95 | 9.15 | 10.60 |
| 29/64 | 3/4 | 5.72 | 4.87 | 5.40 | 5.40 | 5.72 | 5.72 | 6.25 | 7.95 | 9.15 | — |
| 15/32 | 3/4 | 5.72 | 4.87 | 5.40 | 5.40 | 5.72 | 5.72 | 6.25 | 7.95 | 9.15 | — |
| 31/64 | 3/4 | 5.72 | 4.87 | 5.40 | 5.40 | 5.72 | 5.72 | 6.25 | 7.95 | 9.15 | — |
| 1/2 | 3/4 | 5.72 | 4.87 | 5.40 | 5.40 | 5.72 | 5.72 | 6.25 | 7.95 | 9.15 | 10.60 |
| 1/2 | 7/8 | — | — | 7.35 | 6.50 | — | 6.75 | 7.10 | 7.80 | 9.35 | — |
| 1/2 | 1 | — | — | — | 6.75 | — | 6.75 | 7.20 | 7.95 | 9.58 | 10.60 |
| 33/64 | 3/4 | 5.72 | 4.87 | 5.40 | 5.40 | — | 5.72 | 6.25 | 7.95 | 9.15 | — |
| 33/64 | 7/8 | — | — | 7.35 | 6.50 | — | 6.75 | 7.10 | 7.80 | 9.35 | 10.60 |
| 33/64 | 1 | — | — | — | 6.75 | — | 6.75 | 7.20 | — | 9.58 | 10.60 |
| 17/32 | 3/4 | 5.72 | 4.87 | 5.40 | 5.40 | — | 5.72 | 6.25 | 7.95 | 9.15 | — |
| 17/32 | 7/8 | — | — | 7.35 | 6.50 | — | 6.75 | 7.10 | 7.80 | 9.35 | — |
| 17/32 | 1 | — | — | — | 6.50 | — | 6.75 | 7.20 | 7.80 | 9.58 | 10.60 |
| 35/64 | 7/8 | — | — | 7.35 | 6.50 | — | 6.75 | 7.10 | 7.80 | 9.35 | — |
| 35/64 | 1 | — | — | — | 6.75 | — | 6.75 | 7.20 | 7.80 | 9.58 | 10.60 |
| 9/16 | 7/8 | — | — | — | 6.50 | — | 6.75 | 7.10 | 7.80 | 9.35 | — |
| 9/16 | 1 | — | — | — | 6.75 | — | 6.75 | 7.20 | 7.80 | 9.58 | 10.60 |
| 37/64 | 7/8 | — | 7.10 | 7.35 | 6.50 | — | 6.75 | 7.10 | 7.80 | 9.35 | — |
| 37/64 | 1 | — | — | — | 6.75 | — | 6.75 | 7.20 | 7.80 | 9.58 | 10.60 |
| 19/32 | 7/8 | — | — | 7.35 | 6.50 | — | 6.75 | 7.10 | 7.80 | 9.35 | — |
| 19/32 | 1 | — | — | — | 6.75 | — | 6.75 | 7.20 | 7.80 | 9.58 | 10.60 |
| 39/64 | 7/8 | — | — | 7.35 | 6.50 | — | 6.75 | 7.10 | 7.80 | 9.35 | — |

| Inside Dia. | Out-side Dia. | Price Each | | | | | | | | | |
|-------------|---------------|----------------|-------|------|------|-------|-------|-------|-------|-------|---|
| | | Overall Length | | | | | | | | | |
| | | 3/8 | 1/2 | 5/8 | 3/4 | 1 | 1-3/8 | 1-1/2 | 1-3/4 | 2-1/8 | |
| 39/64 | 1 | — | 6.75 | — | 6.75 | 7.20 | 7.80 | — | 9.58 | 10.60 | — |
| 5/8 | 7/8 | 7.35 | 6.50 | — | 6.75 | 7.10 | 7.80 | — | 9.35 | — | — |
| 5/8 | 1 | — | 6.75 | — | 6.75 | 7.20 | 7.80 | — | 9.58 | — | — |
| 5/8 | 1-3/8 | — | — | — | 8.89 | — | 11.80 | — | 14.00 | — | — |
| 41/64 | 7/8 | 7.35 | 6.50 | — | 6.75 | 7.10 | 7.80 | — | 9.35 | — | — |
| 41/64 | 1 | — | 6.75 | — | 6.75 | 7.20 | 7.80 | — | 9.58 | 10.60 | — |
| 41/64 | 1-3/8 | — | — | — | 8.89 | 10.60 | 11.80 | — | 14.00 | — | — |
| 21/32 | 7/8 | 7.35 | 6.50 | — | 6.75 | 7.10 | 7.80 | — | 9.35 | — | — |
| 21/32 | 1 | — | 6.75 | — | 6.75 | 7.20 | 7.80 | — | 9.58 | 10.60 | — |
| 21/32 | 1-3/8 | — | — | — | 8.89 | 10.60 | 11.80 | — | 14.00 | — | — |
| 43/64 | 1 | — | 6.75 | — | 6.75 | 7.20 | 7.80 | — | 9.58 | 10.60 | — |
| 43/64 | 1-3/8 | — | — | — | 8.89 | 10.60 | 11.80 | — | 14.00 | — | — |
| 11/16 | 1 | — | 6.75 | — | — | 7.20 | 7.80 | — | 9.58 | — | — |
| 11/16 | 1-3/8 | — | — | — | 8.89 | 10.60 | 11.80 | — | 14.00 | — | — |
| 45/64 | 1 | — | 6.75 | — | 6.75 | 7.20 | 7.80 | — | 9.58 | 10.60 | — |
| 45/64 | 1-3/8 | — | — | — | 8.89 | 10.60 | 11.80 | — | 14.00 | — | — |
| 23/32 | 1 | — | 6.75 | — | 6.75 | 7.20 | 7.80 | — | 9.58 | 10.60 | — |
| 23/32 | 1-3/8 | — | — | — | 8.89 | 10.60 | 11.80 | — | 14.00 | — | — |
| 47/64 | 1 | — | 6.75 | — | 6.75 | 7.20 | 7.80 | — | 9.58 | 10.60 | — |
| 47/64 | 1-3/8 | — | — | — | 8.89 | 10.60 | 11.80 | — | 14.00 | — | — |
| 3/4 | 1 | — | 6.75 | — | 6.75 | 7.20 | 7.80 | — | 9.58 | 10.60 | — |
| 3/4 | 1-3/8 | — | — | — | 8.89 | 10.60 | 11.80 | — | 14.00 | — | — |
| 49/64 | 1 | — | 6.75 | — | 6.75 | 7.20 | 7.80 | — | 9.58 | — | — |
| 49/64 | 1-1/8 | — | 10.45 | — | 8.89 | 10.45 | — | 12.65 | 13.75 | — | — |
| 49/64 | 1-3/8 | — | — | — | 8.89 | 10.60 | 11.80 | — | 14.00 | — | — |
| 25/32 | 1-1/8 | — | 10.45 | 9.85 | 8.89 | 10.45 | — | 12.65 | 13.75 | — | — |
| 25/32 | 1-3/8 | — | — | — | 8.89 | 10.60 | 11.80 | — | 14.00 | — | — |
| 51/64 | 1-1/8 | — | 10.45 | 9.85 | 8.89 | 10.45 | — | 12.65 | 13.75 | — | — |
| 51/64 | 1-3/8 | — | — | — | 8.89 | 10.60 | 11.80 | — | 14.00 | — | — |
| 13/16 | 1-1/8 | — | 10.45 | 9.85 | — | 10.45 | — | — | — | — | — |
| 13/16 | 1-3/8 | — | — | — | 8.89 | 10.60 | 11.80 | — | 14.00 | — | — |
| 53/64 | 1-1/8 | — | 10.45 | 9.85 | 8.89 | 10.45 | — | 12.65 | 13.75 | — | — |
| 53/64 | 1-3/8 | — | — | — | 8.89 | 10.60 | 11.80 | — | 14.00 | — | — |
| 27/32 | 1-1/8 | — | 10.45 | 9.85 | 8.89 | 10.45 | — | 12.65 | 13.75 | — | — |
| 27/32 | 1-3/8 | — | — | — | 8.89 | 10.60 | 11.80 | | | | |



DRILL JIG BUSHINGS

HEADLESS PRESS FIT — TYPE "P"



LETTER SIZES

| In-side Dia. | Out-side Dia. | Price Each | | | | | | | | |
|--------------|---------------|----------------|------|------|------|------|------|------|-------|-------|
| | | Overall Length | | | | | | | | |
| | | 1/4 | 5/16 | 3/8 | 1/2 | 5/8 | 3/4 | 1 | 1-3/8 | 1-3/4 |
| A | 13/32 | 4.71 | 4.87 | 5.30 | 5.40 | — | 6.00 | 6.90 | 7.95 | — |
| A | 7/16 | 4.71 | 4.87 | 5.30 | 5.40 | 5.72 | 6.00 | 6.90 | — | — |
| A | 1/2 | 4.71 | 4.87 | 5.30 | 5.40 | — | 6.00 | 6.90 | 7.95 | 9.85 |
| B | 13/32 | 4.71 | 4.87 | 5.30 | 5.40 | — | 6.00 | 6.90 | 7.95 | — |
| B | 7/16 | 4.71 | 4.87 | 5.30 | 5.40 | 5.72 | 6.00 | 6.90 | — | — |
| B | 1/2 | 4.71 | 4.87 | 5.30 | 5.40 | — | 6.00 | 6.90 | 7.95 | 9.85 |
| C | 13/32 | 4.71 | — | 5.30 | 5.40 | — | 6.00 | 6.90 | — | — |
| C | 7/16 | 4.71 | 4.87 | 5.30 | 5.40 | 5.72 | 6.00 | 6.90 | — | — |
| C | 1/2 | 4.71 | 4.87 | 5.30 | 5.40 | — | 6.00 | 6.90 | 7.95 | 9.85 |
| D | 13/32 | 4.71 | 4.87 | 5.30 | 5.40 | — | 6.00 | 6.90 | — | — |
| D | 7/16 | 4.71 | 4.87 | 5.30 | 5.40 | 5.72 | 6.00 | 6.90 | — | — |
| D | 1/2 | 4.71 | 4.87 | 5.30 | 5.40 | — | 6.00 | 6.90 | 7.95 | 9.85 |
| E | 13/32 | 4.71 | — | 5.30 | 5.40 | — | 6.00 | 6.90 | — | — |
| E | 7/16 | — | — | — | 5.40 | — | — | — | — | — |
| E | 13/32 | 4.71 | 4.87 | 5.30 | 5.40 | — | 6.00 | 6.90 | — | — |
| F | 7/16 | 4.71 | 4.87 | 5.30 | 5.40 | 5.72 | 6.00 | 6.90 | — | — |
| F | 1/2 | 4.71 | 4.87 | 5.30 | 5.40 | — | 6.00 | 6.90 | 7.95 | 9.85 |
| G | 7/16 | 4.71 | 4.87 | 5.30 | 5.40 | 5.72 | 6.00 | 6.90 | — | — |
| G | 1/2 | 4.71 | 4.87 | 5.30 | 5.40 | — | 6.00 | 6.90 | 7.95 | 9.85 |
| H | 7/16 | 4.71 | 4.87 | 5.30 | 5.40 | 5.72 | 6.00 | 6.90 | — | — |
| H | 1/2 | 4.71 | 4.87 | 5.30 | 5.40 | — | 6.00 | 6.90 | 7.95 | 9.85 |
| I | 7/16 | 4.71 | 4.87 | 5.30 | 5.40 | 5.72 | 6.00 | — | — | — |
| I | 1/2 | 4.71 | 4.87 | 5.30 | 5.40 | — | 6.00 | 6.90 | 7.95 | — |
| J | 7/16 | 4.71 | 4.87 | 5.30 | 5.40 | 5.72 | 6.00 | 6.90 | — | — |
| J | 1/2 | 4.71 | 4.87 | 5.30 | 5.40 | — | 6.00 | 6.90 | 7.95 | 9.85 |
| K | 7/16 | 4.71 | 4.87 | 5.30 | — | 5.72 | 6.00 | 6.90 | — | — |
| K | 1/2 | 4.71 | 4.87 | 5.30 | 5.40 | — | 6.00 | 6.90 | 7.95 | 9.85 |
| L | 7/16 | 4.71 | 4.87 | 5.30 | 5.40 | 5.72 | 6.00 | 6.90 | — | — |
| L | 1/2 | 4.71 | 4.87 | 5.30 | 5.40 | — | 6.00 | 6.90 | 7.95 | 9.85 |

| In-side Dia. | Out-side Dia. | Price Each | | | | | | | | |
|--------------|---------------|----------------|------|------|------|------|------|------|-------|-------|
| | | Overall Length | | | | | | | | |
| | | 1/4 | 5/16 | 3/8 | 1/2 | 5/8 | 3/4 | 1 | 1-3/8 | 1-3/4 |
| M | 1/2 | 5.40 | — | 4.96 | 5.04 | — | 5.40 | — | — | — |
| M | 9/16 | 5.40 | 4.71 | 4.96 | 5.04 | 5.25 | 5.40 | 5.72 | — | — |
| N | 1/2 | 5.40 | — | 4.96 | 5.04 | — | 5.40 | — | — | — |
| N | 9/16 | 5.40 | 4.71 | 4.96 | 5.04 | — | 5.40 | 5.72 | — | — |
| O | 1/2 | 5.40 | — | 4.96 | 5.04 | — | 5.40 | — | — | — |
| O | 9/16 | 5.40 | 4.71 | 4.96 | 5.04 | 5.25 | 5.40 | — | — | — |
| P | 5/8 | 5.40 | 4.71 | 4.96 | 5.04 | — | 5.40 | 5.72 | — | 8.89 |
| P | 9/16 | 5.40 | 4.71 | 4.96 | 5.04 | — | 5.40 | 5.72 | — | — |
| Q | 5/8 | 5.40 | 4.71 | 4.96 | 5.04 | 5.25 | 5.40 | 5.72 | — | 8.89 |
| Q | 9/16 | 5.40 | 4.71 | 4.96 | 5.04 | — | 5.40 | — | — | — |
| R | 5/8 | 5.40 | 4.71 | 4.96 | 5.04 | — | 5.40 | 5.72 | — | 8.89 |
| R | 9/16 | 5.40 | 4.71 | — | 5.04 | — | 5.40 | 5.72 | — | — |
| S | 5/8 | 5.40 | 4.71 | 4.96 | 5.04 | — | 5.40 | 5.72 | — | 8.89 |
| S | 3/4 | 5.72 | — | 5.40 | 5.40 | — | 5.72 | 6.25 | 7.95 | — |
| T | 5/8 | 5.40 | — | 4.96 | 5.04 | — | 5.40 | 5.72 | — | 8.89 |
| T | 3/4 | 5.72 | — | 5.40 | 5.40 | — | 5.72 | 6.25 | 7.95 | — |
| U | 5/8 | 5.40 | 4.71 | 4.96 | 5.04 | 5.72 | 5.40 | 5.72 | — | 8.89 |
| U | 3/4 | 5.72 | — | — | 5.40 | — | 5.72 | 6.25 | 7.95 | — |
| V | 5/8 | 5.40 | — | 4.96 | 5.04 | — | 5.40 | 5.72 | — | 8.89 |
| V | 3/4 | 5.72 | — | 5.40 | 5.40 | — | 5.72 | 6.25 | — | — |
| W | 5/8 | 5.40 | — | — | 5.04 | 5.72 | 5.40 | 5.72 | — | — |
| W | 3/4 | 5.72 | — | 5.40 | 5.40 | — | 5.72 | 6.25 | 7.95 | — |
| X | 5/8 | 5.40 | — | 4.96 | 5.04 | — | 5.40 | 5.72 | — | — |
| X | 3/4 | — | — | — | — | — | 5.72 | 6.25 | 7.95 | — |
| Y | 5/8 | 5.40 | — | 5.40 | 5.40 | — | 5.40 | 5.72 | — | — |
| Y | 3/4 | — | — | — | — | — | 5.72 | 6.25 | — | — |
| Z | 5/8 | 5.40 | 4.87 | 5.40 | 5.40 | — | 5.40 | 5.72 | — | — |
| Z | 3/4 | — | — | — | — | — | — | 6.25 | — | — |

WIRE GAUGE SIZES

| In-side Dia. | Out-side Dia. | Price Each | | | | | | | | |
|--------------|---------------|----------------|------|------|------|------|------|------|-------|-------|
| | | Overall Length | | | | | | | | |
| | | 1/4 | 5/16 | 3/8 | 1/2 | 5/8 | 3/4 | 1 | 1-3/8 | 1-3/4 |
| 1 | 3/8 | 4.71 | 4.87 | 5.30 | 5.40 | 5.72 | 6.00 | 6.90 | — | — |
| 1 | 13/32 | 4.71 | 4.87 | 5.30 | 5.40 | — | 6.00 | 6.90 | 7.95 | 9.85 |
| 1 | 1/2 | 4.71 | 4.87 | 5.30 | 5.40 | — | 6.00 | 6.90 | 7.95 | 9.85 |
| 2 | 3/8 | 4.71 | 4.87 | 5.30 | 5.40 | 5.72 | 6.00 | 6.90 | — | — |
| 2 | 13/32 | 4.71 | 4.87 | 5.30 | 5.40 | — | 6.00 | 6.90 | 7.95 | 9.85 |
| 2 | 1/2 | 4.71 | 4.87 | 5.30 | 5.40 | — | 6.00 | 6.90 | 7.95 | 9.85 |
| 3 | 3/8 | 4.71 | 4.87 | 5.30 | 5.40 | — | 6.00 | 6.90 | — | — |
| 3 | 13/32 | 4.71 | 4.87 | 5.30 | 5.40 | — | 6.00 | 6.90 | 7.95 | 9.85 |
| 3 | 1/2 | 4.71 | 4.87 | 5.30 | 5.40 | — | 6.00 | 6.90 | 7.95 | — |
| 4 | 3/8 | 4.71 | 4.87 | 5.30 | — | 5.72 | 6.00 | 6.90 | — | — |
| 4 | 13/32 | 4.71 | 4.87 | 5.30 | 5.40 | — | 6.00 | 6.90 | 7.95 | 9.85 |
| 4 | 1/2 | 4.71 | 4.87 | 5.30 | 5.40 | — | 6.00 | 6.90 | 7.95 | 9.85 |
| 5 | 3/8 | 4.71 | 4.87 | 5.30 | 5.40 | 5.72 | 6.00 | 6.90 | — | — |
| 5 | 13/32 | 4.71 | 4.87 | 5.30 | 5.40 | — | 6.00 | 6.90 | 7.95 | 9.85 |
| 5 | 1/2 | 4.71 | 4.87 | 5.30 | 5.40 | — | 6.00 | 6.90 | 7.95 | 9.85 |
| 6 | 3/8 | 4.71 | 4.87 | 5.30 | 5.40 | 5.72 | 6.00 | 6.90 | — | — |
| 6 | 13/32 | 4.71 | 4.87 | 5.30 | 5.40 | — | 6.00 | 6.90 | 7.95 | 9.85 |
| 6 | 1/2 | 4.71 | 4.87 | 5.30 | 5.40 | — | 6.00 | 6.90 | 7.95 | 9.85 |
| 7 | 3/8 | 4.71 | 4.87 | 5.30 | 5.40 | 5.72 | 6.00 | 6.90 | — | — |
| 7 | 13/32 | 4.71 | 4.87 | 5.30 | 5.40 | — | 6.00 | 6.90 | 7.95 | 9.85 |
| 7 | 1/2 | 4.71 | 4.87 | 5.30 | 5.40 | — | 6.00 | 6.90 | 7.95 | 9.85 |
| 8 | 3/8 | 4.71 | 4.87 | 5.30 | 5.40 | 5.72 | 6.00 | 6.90 | — | — |
| 8 | 13/32 | 4.71 | 4.87 | 5.30 | 5.40 | — | 6.00 | 6.90 | 7.95 | 9.85 |
| 8 | 1/2 | 4.71 | 4.87 | 5.30 | 5.40 | — | 6.00 | 6.90 | 7.95 | 9.85 |
| 9 | 3/8 | 4.71 | 4.87 | 5.30 | 5.40 | — | 6.00 | 6.90 | 7.95 | 9.85 |
| 9 | 13/32 | 4.71 | 4.87 | 5.30 | 5.40 | — | 6.00 | 6.90 | 7.95 | 9.85 |
| 9 | 1/2 | 4.71 | 4.87 | 5.30 | 5.40 | — | 6.00 | 6.90 | 7.95 | 9.85 |
| 10 | 5/16 | 5.40 | 5.72 | 6.00 | 5.40 | — | 6.75 | 7.10 | 10.44 | — |
| 10 | 3/8 | 4.71 | 4.87 | 5.30 | 6.25 | 5.72 | 6.00 | 6.90 | — | — |
| 10 | 13/32 | 4.71 | 4.87 | 5.30 | 5.40 | — | 6.00 | 6.90 | 7.95 | 9.85 |
| 10 | 1/2 | 4.71 | 4.87 | 5.30 | 5.40 | — | 6.00 | 6.90 | 7.95 | — |
| 11 | 5/16 | 5.40 | 5.72 | 6.00 | 5.40 | — | 6.75 | 7.10 | 10.44 | — |
| 11 | 13/32 | 4.71 | 4.87 | 5.30 | 6.25 | — | 6.00 | 6.90 | 7.95 | 9.85 |
| 11 | 1/2 | 4.71 | 4.87 | 5.30 | 5.40 | — | 6.00 | 6.90 | 7.95 | 9.85 |
| 12 | 5/16 | 5.40 | 5.72 | 6.00 | 5.40 | 6.50 | 6.75 | 7.10 | — | — |
| 12 | 13/32 | 4.71 | 4.87 | 5.30 | 6.25 | — | 6.00 | 6.90 | 7.95 | 9.85 |
| 12 | 1/2 | 4.71 | 4.87 | 5.30 | 5.40 | — | 6.00 | 6.90 | 7.95 | 9.85 |
| 13 | 5/16 | 5.40 | 5.72 | 6.00 | 6.25 | — | 6.75 | 7.10 | 10.44 | — |
| 14 | 5/16 | 5.40 | 5.72 | 6.00 | 6.25 | — | 6.75 | 7.10 | 10.44 | — |
| 15 | 5/16 | 5.40 | 5.72 | 6.00 | 6.25 | — | 6.75 | 7.10 | 10.44 | — |
| 16 | 5/16 | 5.40 | 5.72 | 6.00 | 6.25 | — | 6.75 | 7.10 | 10.44 | — |
| 17 | 5/16 | 5.40 | 5.72 | 6.00 | 6.25 | — | 6.75 | 7.10 | — | — |
| 18 | 5/16 | 5.40 | 5.72 | 6.00 | 6.25 | — | 6.75 | 7.10 | 10.44 | — |
| 19 | 5/16 | 5.40 | 5.72 | 6.00 | 6.25 | 6.50 | 6.75 | 7.10 | 10.44 | — |
| 20 | 5/16 | 5.40 | 5.72 | 6.00 | 6.25 | 6.50 | 6.75 | 7.10 | 10.44 | — |
| 21 | 5/16 | 5.40 | 5.72 | 6.00 | 6.25 | — | 6.75 | 7.10 | 10.44 | — |
| 22 | 5/16 | 5.40 | 5.72 | 6.00 | 6.25 | — | 6.75 | 7.10 | 10.44 | — |
| 23 | 5/16 | 5.40 | 5.72 | 6.00 | 6.25 | — | 6.75 | 7.10 | 10.44 | — |
| 24 | 5/16 | 5.40 | 5.72 | 6.00 | 6.25 | — | 6.75 | 7.10 | 10.44 | — |
| 25 | 5/16 | 5.40 | 5.72 | 6.00 | 6.25 | 6.50 | 6.75 | 7.10 | — | — |
| 26 | 5/16 | 5.40 | 5.72 | 6.00 | 6.25 | 6.50 | 6.75 | 7.10 | 10.44 | — |
| 27 | 5/16 | 5.40 | 5.72 | 6.00 | 6.25 | — | 6.75 | 7.10 | 10.44 | — |
| 28 | 1/4 | 6.50 | 6.90 | 7.50 | 7.95 | — | 8.89 | 9.85 | 14.69 | — |
| 28 | 5/16 | 5.40 | 5.72 | 6.00 | 6.25 | 6.50 | 6.75 | 7.10 | 10.44 | — |
| 29 | 1/4 | 6.50 | 6.90 | 7.50 | 7.95 | 8.45 | 8.89 | 9.85 | 14.69 | — |
| 29 | 5/16 | 5.40 | 5.72 | 6.00 | 6.25 | — | 6.75 | 7.10 | 10.44 | — |
| 30 | 1/4 | 6.50 | 6.90 | 7.50 | 7.95 | 8.45 | 8.89 | 9.85 | 14.69 | — |
| 30 | 5/16 | 5.40 | 5.72 | 6.00 | 6.25 | — | 6.75 | 7.10 | 10.44 | — |
| 31 | 1/4 | 6.50 | 6.90 | 7.50 | 7.95 | 8.45 | 8.89 | 9.85 | 14.69 | — |
| 32 | 1/4 | 6.50 | 6.90 | 7.50 | 7.95 | 8.45 | 8.89 | 9.85 | 14.69 | — |

| In-side Dia. | Out-side Dia. | Price Each | | | | | | | | |
|--------------|---------------|----------------|------|------|------|------|------|------|-------|-------|
| | | Overall Length | | | | | | | | |
| | | 1/4 | 5/16 | 3/8 | 1/2 | 5/8 | 3/4 | 1 | 1-3/8 | 1-3/4 |
| 33 | 1/4 | 6.50 | 6.90 | 7.50 | 7.95 | 8.45 | 8.89 | 9.85 | 14.69 | — |
| 34 | 1/4 | 6.50 | 6.90 | 7.50 | 7.95 | 8.45 | 8.89 | 9.85 | 14.69 | — |
| 35 | 1/4 | 6.50 | 6.90 | 7.50 | 7.95 | 8.4 | | | | |



■ DRILL JIG BUSHINGS

HEAD PRESS FIT — TYPE “H”



Drill Bushings are used for permanent press fit installations. When used as a drill guide, accurate hole size is maintained while eliminating bending and wandering on the workpiece.

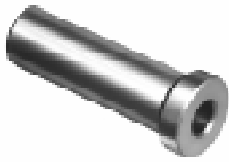
Correct overall length is measured on barrel only. Do not include collar.

Please inquire for quantity discount.

FRACTIONAL SIZES

| In-side Dia. | Out-side Dia. | Price Each | | | | | | | | | |
|--------------|---------------|----------------|-------|-------|-------|------|-------|-------|-------|-------|-------|
| | | Overall Length | | | | | | | | | |
| | | 1/4 | 5/16 | 3/8 | 1/2 | 5/8 | 3/4 | 1 | 1-3/8 | 1-3/4 | 2-1/8 |
| 1/32 | 5/32 | 19.85 | 20.20 | 20.70 | 21.40 | — | — | — | — | — | — |
| 3/64 | 5/32 | 19.85 | 20.20 | 20.70 | 21.40 | — | — | — | — | — | — |
| 1/16 | 5/32 | 17.45 | 17.70 | 17.95 | 18.30 | — | — | — | — | — | — |
| 1/16 | 3/16 | 17.45 | 17.70 | 17.95 | 18.30 | — | 19.95 | — | — | — | — |
| 1/16 | 13/64 | 17.45 | 17.70 | 17.95 | 18.30 | — | 19.95 | 22.90 | — | — | — |
| 1/16 | 3/8 | — | — | 18.30 | — | — | — | — | — | — | — |
| 5/64 | 3/16 | 17.45 | 17.70 | 17.95 | 18.30 | — | 19.95 | — | — | — | — |
| 5/64 | 13/64 | 9.15 | 9.35 | 8.75 | 10.18 | — | 11.55 | 14.70 | — | — | — |
| 3/32 | 3/16 | 9.15 | 9.35 | 8.75 | 10.18 | — | 11.55 | — | — | — | — |
| 3/32 | 13/64 | 9.15 | 9.35 | 8.75 | 10.18 | — | 11.55 | 14.70 | — | — | — |
| 7/64 | 1/4 | 7.95 | 8.45 | 8.89 | 9.15 | — | — | — | — | — | — |
| 1/8 | 1/4 | 7.95 | 8.45 | 8.89 | 9.15 | — | — | — | — | — | — |
| 1/8 | 5/16 | — | — | — | 7.50 | — | 7.80 | 9.35 | 15.75 | — | — |
| 1/8 | 3/8 | — | — | — | 7.50 | — | — | — | — | — | — |
| 9/64 | 1/4 | 7.95 | 8.45 | 8.89 | 9.15 | — | — | — | — | — | — |
| 9/64 | 5/16 | — | — | — | 7.50 | — | 7.80 | 9.35 | 15.75 | — | — |
| 5/32 | 5/16 | — | — | — | 7.50 | — | 7.80 | 9.35 | 15.75 | — | — |
| 11/64 | 5/16 | — | — | — | 7.50 | — | 7.80 | 9.35 | 15.75 | — | — |
| 3/16 | 5/16 | — | — | — | 7.50 | — | 7.80 | 9.35 | 15.75 | — | — |
| 3/16 | 13/32 | 6.00 | 6.25 | 6.75 | 6.90 | — | 7.35 | 8.70 | 9.85 | — | — |
| 3/16 | 1/2 | — | — | 6.75 | — | — | 7.35 | 8.70 | 9.85 | 12.15 | — |
| 13/64 | 3/8 | 6.00 | — | 6.75 | 6.90 | — | 7.35 | 8.70 | — | — | — |
| 13/64 | 13/32 | 6.00 | 6.25 | 6.75 | 6.90 | — | 7.35 | 8.70 | 9.85 | 12.15 | — |
| 13/64 | 1/2 | — | — | 6.75 | 6.90 | — | 7.35 | 8.70 | 9.85 | 12.15 | — |
| 7/32 | 3/8 | 6.00 | 6.50 | 6.75 | 6.90 | — | 7.35 | 8.70 | — | — | — |
| 7/32 | 13/32 | 6.00 | 6.25 | 6.75 | 6.90 | — | 7.35 | 8.70 | 9.85 | — | — |
| 7/32 | 1/2 | — | — | 6.75 | 6.90 | — | 7.35 | 8.70 | 9.85 | 12.15 | — |
| 15/64 | 13/32 | 6.00 | 6.25 | 6.75 | 6.90 | — | 7.35 | 8.70 | 9.85 | 12.15 | — |
| 15/64 | 7/16 | 6.00 | 6.50 | 6.75 | 6.90 | — | — | — | — | — | — |
| 15/64 | 1/2 | — | — | 6.75 | 6.90 | — | 7.35 | 8.70 | 9.85 | 12.15 | — |
| 1/4 | 13/32 | 6.00 | 6.25 | 6.75 | 6.90 | — | 7.35 | 8.70 | — | 12.15 | — |
| 1/4 | 7/16 | 6.00 | 6.50 | 6.75 | 6.90 | — | — | — | — | — | — |
| 1/4 | 1/2 | — | — | 6.75 | 6.90 | — | 7.35 | 8.70 | — | — | — |
| 17/64 | 7/16 | 6.00 | — | 6.75 | 6.90 | — | — | — | — | — | — |
| 17/64 | 1/2 | — | — | 6.75 | 6.90 | — | 7.35 | 8.70 | 9.85 | — | — |
| 9/32 | 7/16 | 6.00 | 6.50 | 6.75 | 6.90 | — | — | — | — | — | — |
| 9/32 | 1/2 | — | — | 6.75 | 6.90 | — | 7.35 | 8.70 | — | — | — |
| 19/64 | 1/2 | — | — | 6.75 | 6.90 | — | 7.35 | 8.70 | 9.85 | 12.15 | — |
| 19/64 | 9/16 | 6.75 | 6.00 | 6.50 | 6.50 | — | 6.75 | 7.35 | — | — | — |
| 5/16 | 1/2 | — | — | 6.75 | 6.90 | — | 7.35 | 8.70 | 9.85 | 12.15 | — |
| 5/16 | 9/16 | 6.75 | 6.00 | 6.50 | 6.50 | 6.75 | 6.75 | 7.35 | — | — | — |
| 5/16 | 5/8 | 6.75 | 6.00 | 6.50 | 6.50 | 6.75 | 6.75 | 7.35 | — | 13.10 | — |
| 5/16 | 3/4 | 7.35 | 6.50 | 6.75 | 6.75 | 7.10 | 7.35 | 7.85 | 10.15 | 11.35 | — |
| 21/64 | 9/16 | 6.75 | 6.00 | 6.50 | 6.50 | 6.75 | 6.75 | — | — | — | — |
| 21/64 | 5/8 | — | 6.00 | 6.50 | 6.50 | 6.75 | 6.75 | 7.35 | 9.85 | 11.35 | — |
| 21/64 | 3/4 | 7.35 | 6.50 | 6.75 | 6.75 | 7.10 | 7.35 | 7.85 | 10.15 | 11.35 | — |
| 11/32 | 9/16 | 6.75 | 6.00 | 6.50 | 6.50 | 6.75 | 6.75 | — | — | — | — |
| 11/32 | 5/8 | 6.75 | 6.00 | 6.50 | 6.50 | 6.75 | 6.75 | 7.35 | 9.85 | — | — |
| 11/32 | 3/4 | 7.35 | 6.50 | 6.75 | 6.75 | 7.10 | 7.35 | 7.85 | 10.15 | 11.35 | — |
| 23/64 | 5/8 | 6.75 | 6.00 | 6.50 | 6.50 | 6.75 | 6.75 | 7.35 | 9.85 | 11.35 | — |
| 23/64 | 3/4 | 7.35 | 6.50 | 6.75 | 6.75 | 7.10 | 7.35 | — | 10.15 | 11.35 | 13.10 |
| 3/8 | 5/8 | 6.75 | 6.00 | 6.50 | 6.50 | — | 6.75 | 7.35 | — | 11.35 | 13.10 |
| 3/8 | 3/4 | 7.35 | 6.50 | 6.75 | 6.75 | 7.10 | 7.35 | 7.85 | 10.15 | 11.35 | — |
| 25/64 | 5/8 | 6.75 | 6.00 | 6.50 | 6.50 | 6.75 | 6.75 | 7.35 | 9.85 | 11.35 | — |
| 25/64 | 3/4 | 7.35 | 6.50 | 6.75 | 6.75 | 7.10 | 7.35 | 7.85 | 10.15 | 11.35 | — |
| 13/32 | 5/8 | 6.75 | 6.00 | — | 6.50 | 6.75 | 6.75 | 7.35 | 9.85 | 11.35 | — |
| 13/32 | 3/4 | 7.35 | 6.50 | 6.75 | 6.75 | 7.10 | 7.35 | 7.85 | 10.15 | 11.35 | — |
| 27/64 | 5/8 | 6.75 | 6.00 | 6.50 | 6.50 | 6.75 | 6.75 | 7.35 | 9.85 | 11.35 | — |
| 27/64 | 3/4 | 7.35 | 6.50 | 6.75 | 6.75 | 7.10 | 7.35 | 7.85 | 10.15 | 11.35 | — |
| 7/16 | 5/8 | — | 6.00 | 6.50 | 6.50 | 6.75 | 6.75 | 7.35 | 9.85 | 11.35 | — |
| 7/16 | 3/4 | 7.35 | 6.50 | 6.75 | 6.75 | 7.10 | 7.35 | 7.85 | 10.15 | 11.35 | — |
| 29/64 | 3/4 | 7.35 | 6.50 | 6.75 | 6.75 | — | — | 7.85 | 10.15 | 11.35 | — |
| 15/32 | 3/4 | — | 6.50 | 6.75 | 6.75 | 7.10 | 7.35 | 7.85 | 10.15 | 11.35 | — |
| 31/64 | 3/4 | 7.35 | 6.50 | 6.75 | 6.75 | 7.10 | 7.35 | 7.85 | 10.15 | 11.35 | — |
| 1/2 | 1/2 | — | 6.50 | 6.75 | 6.75 | 7.10 | 7.35 | 7.85 | 10.15 | 11.35 | 13.10 |
| 1/2 | 7/8 | — | — | 7.95 | — | — | 8.70 | 8.70 | 9.74 | 12.14 | 13.35 |
| 1/2 | 1 | — | — | — | 8.45 | — | 8.80 | 9.15 | 9.85 | 12.90 | 15.25 |
| 33/64 | 3/4 | 7.35 | 6.50 | 6.75 | 6.75 | 7.10 | 7.35 | 7.85 | 10.15 | 11.35 | — |
| 33/64 | 7/8 | — | — | 7.95 | 8.20 | 8.20 | 8.70 | 8.70 | 9.74 | 12.14 | 13.35 |
| 33/64 | 1 | — | — | — | 8.45 | — | 8.80 | 9.15 | 9.85 | 12.90 | 15.25 |
| 17/32 | 3/4 | 7.35 | 6.50 | — | 6.75 | — | 7.35 | 7.85 | 10.15 | 11.35 | — |
| 17/32 | 7/8 | — | — | 7.95 | 8.20 | 8.20 | 8.70 | 8.70 | 9.74 | 12.14 | 13.35 |
| 17/32 | 1 | — | — | — | 8.45 | — | 8.80 | 9.15 | 9.85 | 12.90 | 15.25 |
| 35/64 | 7/8 | — | — | 7.95 | 8.20 | 8.20 | 8.70 | 8.70 | 9.74 | 12.14 | 13.35 |
| 35/64 | 1 | — | — | — | 8.45 | — | 8.80 | 9.15 | 9.85 | 12.90 | 15.25 |
| 9/16 | 7/8 | — | — | 7.95 | 8.20 | — | 8.70 | 8.70 | 9.74 | 12.14 | 13.35 |
| 9/16 | 1 | — | — | — | 8.45 | — | 8.80 | 9.15 | 9.85 | 12.90 | 15.25 |
| 37/64 | 7/8 | — | — | 7.95 | 8.20 | 8.20 | 8.70 | 8.70 | 9.74 | 12.14 | 13.35 |
| 37/64 | 1 | — | — | — | 8.45 | — | 8.80 | 9.15 | 9.85 | 12.90 | 15.25 |
| 19/32 | 7/8 | — | — | 7.95 | 8.20 | 8.20 | 8.70 | 8.70 | 9.74 | 12.14 | 13.35 |

| In-side Dia. | Out-side Dia. | Price Each | | | | | | | | |
|--------------|---------------|----------------|-------|------|-------|-------|-------|-------|-------|--|
| | | Overall Length | | | | | | | | |
| | | 3/8 | 1/2 | 5/8 | 3/4 | 1 | 1-3/8 | 1-3/4 | 2-1/8 | |
| 19/32 | 1 | — | 8.45 | — | 8.80 | 9.15 | 9.85 | 12.90 | 15.25 | |
| 39/64 | 7/8 | 7.95 | 8.20 | 8.20 | 8.70 | 8.70 | 9.74 | 12.14 | 13.35 | |
| 39/64 | 1 | — | 8.45 | — | 8.80 | 9.15 | 9.85 | 12.90 | 15.25 | |
| 5/8 | 7/8 | 7.95 | 8.20 | 8.20 | 8.70 | 8.70 | 9.74 | 12.14 | 13.35 | |
| 5/8 | 1 | — | 8.45 | — | 8.80 | 9.15 | 9.85 | 12.90 | 15.25 | |
| 5/8 | 1-3/8 | — | 13.75 | — | 12.99 | — | 15.45 | — | — | |
| 41/64 | 7/8 | 7.95 | 8.20 | 8.20 | 8.70 | 8.70 | 9.74 | 12.14 | 13.35 | |
| 41/64 | 1 | — | 13.75 | — | 8.80 | — | 9.85 | 12.90 | 15.25 | |
| 41/64 | 1-3/8 | — | 13.75 | — | 12.99 | 13.85 | 15.45 | — | — | |
| 21/32 | 7/8 | 7.95 | 8.20 | 8.20 | 8.70 | 8.70 | 9.60 | 12.14 | 13.35 | |
| 21/32 | 1 | — | 8.45 | — | 8.80 | 9.15 | 9.85 | 12.90 | 15.25 | |
| 21/32 | 1-3/8 | — | 13.75 | — | 12.99 | 13.85 | 15.45 | — | — | |
| 43/64 | 1 | — | 8.45 | — | 8.80 | 9.15 | 9.85 | 12.90 | 15.25 | |
| 43/64 | 1-3/8 | — | 13.75 | — | 12.99 | 13.85 | 15.45 | — | — | |
| 11/16 | 1 | — | 8.45 | — | 8.80 | 9.15 | 9.85 | 12.90 | 15.25 | |
| 11/16 | 1-3/8 | — | 13.75 | — | 12.99 | 13.85 | 15.45 | — | — | |
| 45/64 | 1 | — | 8.45 | — | 8.80 | 9.15 | 9.85 | 12.90 | 15.25 | |
| 45/64 | 1-3/8 | — | 13.75 | — | 12.99 | 13.85 | 15.45 | — | — | |
| 23/32 | 1 | — | 8.45 | — | 8.80 | 9.15 | 9.85 | 12.90 | 15.25 | |
| 23/32 | 1-3/8 | — | 13.75 | — | 12.99 | 13.85 | 15.45 | — | — | |
| 47/64 | 1 | — | 8.45 | — | 8.80 | 9.15 | 9.85 | 12.90 | 15.25 | |
| 47/64 | 1-3/8 | — | 13.75 | — | 12.99 | 13.85 | 15.45 | — | — | |
| 3/4 | 1 | — | 8.45 | — | 8.80 | 9.15 | 9.85 | 12.90 | 15.25 | |
| 3/4 | 1-3/8 | — | 13.75 | — | 12.99 | 13.85 | 15.45 | — | — | |
| 49/64 | 1 | — | 8.45 | — | 8.80 | — | 9.85 | 12.90 | 15.25 | |
| 49/64 | 1-3/8 | — | 13.75 | — | 12.99 | 13.85 | 15.45 | — | — | |
| 25/32 | 1-3/8 | — | 13.75 | — | 12.99 | 13.85 | 15.45 | — | — | |
| 51/64 | 1-3/8 | — | 13.75 | — | 12.99 | 13.85 | 15.45 | — | — | |
| 13/16 | 1-3/8 | — | 13.75 | — | — | — | 15.45 | — | — | |
| 53/64 | 1-3/8 | — | 13.75 | — | 12.99 | 13.85 | 15.45 | — | — | |
| 27/32 | 1-3/8 | — | 13.75 | — | 12.99 | 13.85 | 15.45 | — | — | |
| 55/64 | 1-1/4 | — | — | — | 12.40 | 13.60 | — | 17.45 | — | |
| 55/64 | 1-3/8 | — | 13.75 | — | 12.99 | 13.85 | 15.45 | — | — | |
| 7/8 | 1-1/4 | — | — | — | 12.40 | 13.60 | — | 17.45 | — | |
| 7/8 | 1-3/8 | — | — | — | 12.99 | 13.85 | 15.45 | — | — | |
| 57/64 | 1-1/4 | — | — | — | 12.40 | — | — | 17.45 | — | |
| 57/64 | 1-3/8 | — | 13.75 | — | 12.99 | 13.85 | 15.45 | — | — | |
| 29/32 | 1-1/4 | — | — | — | | | | | | |



DRILL JIG BUSHINGS

HEAD PRESS FIT — TYPE "H"

Correct overall length is measured on barrel only. Do not include collar.



LETTER SIZES

| In-Side Dia. | Out-Side Dia. | Price Each | | | | | | | | |
|--------------|---------------|----------------|------|------|------|------|------|------|-------|-------|
| | | Overall Length | | | | | | | | |
| | | 1/4 | 5/16 | 3/8 | 1/2 | 5/8 | 3/4 | 1 | 1-3/8 | 1-3/4 |
| A | 13/32 | 6.00 | 6.25 | 6.75 | 6.90 | — | 7.35 | 8.75 | 9.85 | — |
| A | 7/16 | 6.00 | 6.50 | 6.75 | — | — | — | — | — | — |
| A | 1/2 | — | — | 6.75 | 6.90 | — | 7.35 | 8.75 | — | — |
| B | 13/32 | — | — | 6.75 | 6.90 | — | 7.35 | 8.75 | 9.85 | — |
| B | 7/16 | 6.00 | 6.50 | 6.75 | 6.90 | — | — | — | — | — |
| B | 1/2 | — | — | 6.75 | 6.90 | — | 7.35 | 8.75 | — | — |
| C | 13/32 | 6.00 | 6.25 | 6.75 | 6.90 | — | 7.35 | 8.75 | 9.85 | — |
| C | 7/16 | 6.00 | 6.50 | 6.75 | 6.90 | — | — | — | — | — |
| C | 1/2 | — | — | 6.75 | 6.90 | — | 7.35 | 8.75 | — | — |
| D | 13/32 | 6.00 | 6.25 | 6.75 | 6.90 | — | 7.35 | 8.75 | 9.85 | — |
| D | 7/16 | 6.00 | 6.50 | 6.75 | — | — | — | — | — | — |
| D | 1/2 | — | — | 6.75 | 6.90 | — | 7.35 | 8.75 | — | — |
| E | 13/32 | — | — | — | — | — | — | — | 9.85 | — |
| F | 13/32 | 6.00 | 6.25 | 6.75 | 6.90 | — | 7.35 | 8.75 | 9.85 | — |
| F | 1/2 | — | — | — | 6.90 | — | 7.35 | 8.75 | — | — |
| G | 7/16 | 6.00 | 6.50 | — | 6.90 | — | — | — | — | — |
| G | 1/2 | — | — | 6.75 | 6.90 | — | 7.35 | 8.75 | — | — |
| H | 7/16 | 6.00 | 6.50 | 6.75 | 6.90 | — | — | — | — | — |
| H | 1/2 | — | — | 6.75 | 6.90 | — | 7.35 | 8.75 | — | — |
| I | 7/16 | 6.00 | 6.50 | — | 6.90 | — | — | — | — | — |
| I | 1/2 | — | — | 6.75 | 6.90 | — | 7.35 | 8.75 | — | — |
| J | 7/16 | 6.00 | 6.50 | 6.75 | 6.90 | — | — | — | — | — |
| J | 1/2 | — | — | 6.75 | 6.90 | — | 7.35 | 8.75 | — | — |
| K | 7/16 | 6.00 | 6.50 | 6.75 | 6.90 | — | — | — | — | — |
| K | 1/2 | — | — | 6.75 | 6.90 | — | 7.35 | 8.75 | — | — |
| L | 7/16 | 6.00 | 6.50 | 6.75 | 6.90 | — | — | — | — | — |
| L | 1/2 | — | — | 6.75 | 6.90 | — | 7.35 | 8.75 | — | — |
| M | 1/2 | — | — | 6.75 | 6.90 | — | 7.35 | 8.75 | — | — |
| M | 9/16 | 6.75 | 6.00 | 6.50 | 6.50 | 6.75 | 6.75 | 7.35 | — | — |
| N | 1/2 | — | — | 6.75 | 6.90 | — | 7.35 | 8.75 | — | — |

| In-Side Dia. | Out-Side Dia. | Price Each | | | | | | | |
|--------------|---------------|----------------|------|------|------|------|------|------|------|
| | | Overall Length | | | | | | | |
| | | 1/4 | 5/16 | 3/8 | 1/2 | 5/8 | 3/4 | 1 | — |
| N | 9/16 | 6.75 | 6.00 | 6.50 | 6.50 | 6.75 | 6.75 | 7.35 | 7.35 |
| O | 9/16 | 6.75 | 6.00 | 6.50 | 6.50 | 6.75 | 6.75 | 7.35 | 7.35 |
| O | 5/8 | — | — | — | — | — | — | 6.75 | 7.35 |
| O | 3/4 | — | — | — | — | — | — | 7.35 | 7.85 |
| P | 9/16 | 6.75 | 6.00 | 6.50 | 6.50 | 6.75 | 6.75 | 7.35 | 7.35 |
| P | 5/8 | — | — | — | — | — | — | 6.75 | — |
| P | 3/4 | — | — | — | — | — | — | 7.35 | 7.85 |
| Q | 9/16 | 6.75 | 6.00 | 6.50 | 6.50 | 6.75 | 6.75 | 7.35 | 7.35 |
| Q | 5/8 | — | — | — | — | — | — | 6.75 | — |
| R | 3/4 | — | — | — | — | — | — | 7.35 | 7.85 |
| R | 9/16 | 6.75 | 6.00 | 6.50 | 6.50 | 6.75 | 6.75 | 7.35 | 7.35 |
| R | 5/8 | — | — | — | — | 6.50 | — | 6.75 | — |
| R | 3/4 | — | — | — | — | — | — | 7.35 | — |
| S | 5/8 | — | — | — | — | 6.50 | — | 6.75 | — |
| S | 3/4 | — | — | — | — | — | — | 7.35 | 7.85 |
| T | 5/8 | — | — | — | — | — | — | 6.75 | — |
| T | 3/4 | — | — | — | — | — | — | 7.35 | 7.85 |
| U | 5/8 | — | — | — | 6.50 | — | — | 6.75 | — |
| U | 3/4 | — | — | — | — | — | — | 7.35 | 7.85 |
| V | 5/8 | 6.75 | — | — | 6.50 | — | — | 6.75 | 7.35 |
| V | 3/4 | — | — | — | — | — | — | 7.35 | 7.85 |
| W | 5/8 | — | — | 6.50 | 6.50 | — | — | 6.75 | — |
| W | 3/4 | — | — | — | — | — | — | 7.35 | 7.85 |
| X | 5/8 | — | — | — | — | — | — | 6.75 | 7.35 |
| Y | 3/4 | — | — | — | — | — | — | 7.35 | 7.85 |
| Z | 5/8 | — | — | — | — | — | — | 6.75 | 7.35 |
| Z | 3/4 | — | — | — | — | — | — | 7.35 | 7.85 |

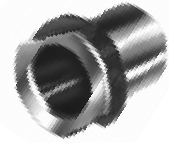
WIRE GAUGE SIZES

| In-Side Dia. | Out-Side Dia. | Price Each | | | | | | | | |
|--------------|---------------|----------------|------|------|------|------|------|-------|-------|---|
| | | Overall Length | | | | | | | | |
| | | 1/4 | 5/16 | 3/8 | 1/2 | 3/4 | 1 | 1-3/8 | 1-3/4 | — |
| 1 | 3/8 | 6.00 | 6.50 | 6.75 | 6.90 | 7.35 | — | — | — | — |
| 1 | 13/32 | 6.00 | 6.25 | — | 6.90 | 7.35 | 8.75 | 9.85 | 12.15 | — |
| 1 | 1/2 | — | — | 6.75 | 6.90 | 7.35 | 8.75 | 9.85 | 12.15 | — |
| 2 | 3/8 | 6.00 | 6.50 | 6.75 | 6.90 | 7.35 | 8.75 | — | — | — |
| 2 | 13/32 | 6.00 | 6.25 | 6.75 | 6.90 | 7.35 | 8.75 | 9.85 | 12.15 | — |
| 2 | 1/2 | — | — | 6.75 | 6.90 | 7.35 | 8.75 | 9.85 | 12.15 | — |
| 3 | 3/8 | 6.00 | — | 6.75 | 6.90 | 7.35 | 8.75 | — | — | — |
| 3 | 13/32 | 6.00 | 6.25 | 6.75 | 6.90 | 7.35 | 8.75 | 9.85 | 12.15 | — |
| 3 | 1/2 | — | — | 6.75 | 6.90 | 7.35 | 8.75 | 9.85 | 12.15 | — |
| 4 | 3/8 | 6.00 | 6.50 | 6.75 | 6.90 | 7.35 | 8.75 | — | — | — |
| 4 | 13/32 | 6.00 | 6.25 | 6.75 | 6.90 | 7.35 | 8.75 | 9.85 | 12.15 | — |
| 4 | 1/2 | — | — | 6.75 | 6.90 | 7.35 | 8.75 | 9.85 | 12.15 | — |
| 5 | 3/8 | 6.00 | 6.50 | 6.75 | 6.90 | — | 8.75 | — | — | — |
| 5 | 13/32 | 6.00 | 6.25 | 6.75 | 6.90 | 7.35 | 8.75 | 9.85 | 12.15 | — |
| 5 | 1/2 | — | — | 6.75 | 6.90 | 7.35 | 8.75 | 9.85 | 12.15 | — |
| 6 | 3/8 | 6.00 | — | 6.75 | 6.90 | 7.35 | 8.75 | — | — | — |
| 6 | 13/32 | 6.00 | 6.25 | 6.75 | 6.90 | 7.35 | 8.75 | 9.85 | 12.15 | — |
| 6 | 1/2 | — | — | 6.75 | 6.90 | 7.35 | 8.75 | — | 12.15 | — |
| 7 | 3/8 | 6.00 | — | 6.75 | 6.90 | 7.35 | 8.75 | — | — | — |
| 7 | 13/32 | 6.00 | 6.25 | 6.75 | 6.90 | 7.35 | 8.75 | 9.85 | 12.15 | — |
| 7 | 1/2 | — | — | 6.75 | 6.90 | 7.35 | 8.75 | 9.85 | 12.15 | — |
| 8 | 3/8 | — | — | 6.75 | 6.90 | 7.35 | 8.75 | — | — | — |
| 8 | 13/32 | 6.00 | 6.25 | — | 6.90 | 7.35 | 8.75 | 9.85 | 12.15 | — |
| 8 | 1/2 | — | — | 6.75 | 6.90 | 7.35 | 8.75 | 9.85 | 12.15 | — |
| 9 | 3/8 | 6.00 | 6.50 | 6.75 | — | 7.35 | 8.75 | — | — | — |
| 9 | 13/32 | 6.00 | 6.25 | 6.75 | 6.90 | 7.35 | 8.75 | 9.85 | 12.15 | — |
| 9 | 1/2 | — | — | 6.75 | 6.90 | 7.35 | 8.75 | 9.85 | 12.15 | — |
| 10 | 5/16 | — | — | — | 7.50 | 7.80 | 9.35 | 15.75 | — | — |
| 10 | 3/8 | — | 6.50 | 6.75 | 6.90 | 7.35 | — | — | — | — |
| 10 | 13/32 | — | — | 6.75 | 6.90 | 7.35 | 8.75 | 9.85 | 12.15 | — |
| 10 | 1/2 | — | — | 6.75 | 6.90 | 7.35 | 8.75 | 9.85 | 12.15 | — |
| 11 | 5/16 | — | — | — | 7.50 | 7.80 | 9.35 | 15.75 | — | — |
| 11 | 13/32 | 6.00 | 6.25 | 6.75 | 6.90 | 7.35 | 8.75 | 9.85 | 12.15 | — |
| 11 | 1/2 | — | — | 6.75 | 6.90 | 7.35 | 8.75 | — | 12.15 | — |
| 12 | 5/16 | — | — | — | 7.50 | 7.80 | 9.35 | 15.75 | — | — |
| 12 | 13/32 | 6.00 | 6.25 | 6.75 | 6.90 | 7.35 | 8.75 | 9.85 | 12.15 | — |
| 12 | 1/2 | — | — | 6.75 | 6.90 | 7.35 | 8.75 | 9.85 | 12.15 | — |
| 13 | 5/16 | — | — | — | 7.50 | 7.80 | 9.35 | — | — | — |
| 14 | 5/16 | — | — | — | 7.50 | 7.80 | 9.35 | 15.75 | — | — |
| 15 | 5/16 | — | — | — | 7.50 | 7.80 | 9.35 | 15.75 | — | — |
| 16 | 5/16 | — | — | — | 7.50 | 7.80 | 9.35 | 15.75 | — | — |
| 17 | 5/16 | — | — | — | 7.50 | 7.80 | 9.35 | 15.75 | — | — |
| 18 | 5/16 | — | — | — | 7.50 | 7.80 | 9.35 | 15.75 | — | — |
| 19 | 5/16 | — | — | — | 7.50 | 7.80 | 9.35 | — | — | — |
| 20 | 5/16 | — | — | — | 7.50 | 7.80 | 9.35 | 15.75 | — | — |
| 21 | 5/16 | — | — | — | 7.50 | 7.80 | 9.35 | 15.75 | — | — |
| 22 | 5/16 | — | — | — | 7.50 | 7.80 | 9.35 | 15.75 | — | — |
| 23 | 5/16 | — | — | — | 7.50 | 7.80 | 9.35 | 15.75 | — | — |
| 24 | 5/16 | — | — | — | 7.50 | 7.80 | 9.35 | 15.75 | — | — |
| 25 | 5/16 | — | — | — | 7.50 | 7.80 | 9.35 | 15.75 | — | — |
| 26 | 5/16 | — | — | — | 7.50 | 7.80 | 9.35 | — | — | — |
| 27 | 5/16 | — | — | — | 7.50 | 7.80 | 9.35 | — | — | — |
| 28 | 1/4 | 7.95 | 8.45 | 8.89 | 9.15 | — | — | — | — | — |
| 28 | 5/16 | — | — | — | 7.50 | 7.80 | 9.35 | 15.75 | — | — |
| 29 | 1/4 | 7.95 | 8.45 | 8.89 | 9.15 | — | — | — | — | — |
| 29 | 5/16 | — | — | — | 7.50 | 7.80 | 9.35 | 15.75 | — | — |
| 30 | 1/4 | 7.95 | 8.45 | 8.89 | 9.15 | — | — | — | — | — |
| 30 | 5/16 | — | — | — | 7.50 | 7.80 | 9.35 | 15.75 | — | — |
| 31 | 1/4 | — | 8.45 | 8.89 | 9.15 | — | — | — | — | — |
| 32 | 1/4 | 7.95 | 8.45 | 8.89 | 9.15 | — | — | — | — | — |
| 33 | 1/4 | 7.95 | — | 8.89 | 9.15 | — | — | — | — | — |

| In-Side Dia. | Out-Side Dia. | Price Each | | | | | | |
|--------------|---------------|----------------|------|------|-------|-------|-------|---|
| | | Overall Length | | | | | | |
| | | 1/4 | 5/16 | 3/8 | 1/2 | 3/4 | 1 | — |
| 34 | 1/4 | 7.95 | 8.45 | 8.89 | 9.15 | — | — | — |
| 35 | 1/4 | 7.95 | 8.45 | 8.89 | 9.15 | — | — | — |
| 36 | 1/4 | 7.95 | 8.45 | 8.89 | 9.15 | — | — | — |
| 37 | 1/4 | 7.95 | 8.45 | 8.89 | 9.15 | — | — | — |
| 38 | 1/4 | 7.95 | 8.45 | 8.89 | 9.15 | — | — | — |
| 39 | 3/16 | 9.15 | 9.35 | 8.75 | 10.18 | 11.55 | — | — |
| 39 | 13/64 | 9.15 | 9.35 | 8.75 | 10.18 | 11.55 | 14.70 | — |
| 39 | 1/4 | 7.95 | 8.45 | 8.89 | 9.15 | — | — | — |
| 40 | 3/16 | 9.15 | 9.35 | 8.75 | 10.18 | 11.55 | — | — |
| 40 | 13/64 | 9.15 | 9.35 | 8.75 | 10.18 | 11.55 | 14.70 | — |
| 40 | 1/4 | 7.95 | — | 8.89 | 9.15 | — | — | — |
| 41 | 3/16 | 9.15 | 9.35 | 8.75 | 10.18 | 11.55 | — | — |
| 41 | 13/64 | 9.15 | 9.35 | 8.75 | 10.18 | 11.55 | 14.70 | — |
| 42 | 3/16 | 9.15 | 9.35 | 8.75 | 10.18 | 11.55 | — | — |
| 42 | 13/64 | 9.15 | 9.3 | | | | | |



SLIP FIXED RENEWABLE BUSHINGS



TYPE "SF"
FRACTIONAL SIZES

| In-side Dia. | Out-side Dia. | Price Each | | | | | | | | | |
|--------------|---------------|----------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| | | Overall Length | | | | | | | | | |
| | | 1/4 | 5/16 | 3/8 | 1/2 | 5/8 | 3/4 | 1 | 1-3/8 | 1-3/4 | |
| 1/16 | 3/16 | 19.55 | 19.75 | 20.25 | 20.55 | — | 22.25 | — | — | — | |
| 5/64 | 3/16 | — | — | — | 11.65 | — | — | — | — | — | |
| 7/64 | 1/4 | 9.95 | 9.95 | 10.25 | 10.85 | 11.45 | 12.25 | — | — | — | |
| 1/8 | 1/4 | 9.95 | 9.95 | 10.25 | 10.85 | 11.45 | 12.25 | — | — | — | |
| 1/8 | 5/16 | — | 9.95 | — | 10.35 | — | 11.75 | — | — | — | |
| 9/64 | 5/16 | 9.95 | 9.95 | 10.25 | 10.35 | — | 11.75 | 14.05 | 15.80 | — | |
| 5/32 | 5/16 | 9.95 | — | — | 10.35 | — | 11.75 | 14.05 | — | — | |
| 11/64 | 5/16 | 9.95 | 9.95 | 10.25 | 10.35 | — | 11.75 | 14.05 | — | — | |
| 3/16 | 5/16 | 9.95 | 9.95 | — | 10.35 | — | 11.75 | 14.05 | — | — | |
| 3/16 | 1/2 | — | 8.25 | 8.55 | — | — | 9.65 | 11.05 | 12.75 | — | |
| 13/64 | 1/2 | — | 7.25 | — | 7.85 | — | 8.55 | 9.65 | 12.75 | — | |
| 7/32 | 1/2 | — | — | 7.65 | — | — | — | 9.65 | 11.25 | — | |
| 15/64 | 7/16 | — | — | — | — | 8.25 | 8.55 | 9.65 | — | — | |
| 15/64 | 1/2 | — | — | 7.65 | 7.85 | — | 8.55 | — | — | — | |
| 1/4 | 7/16 | — | — | — | — | — | 8.55 | 9.65 | — | — | |
| 1/4 | 1/2 | 6.85 | 7.25 | — | 7.85 | — | 8.55 | — | 11.25 | 13.35 | |
| 17/64 | 7/16 | — | — | — | — | 8.25 | 8.55 | 9.65 | — | — | |
| 17/64 | 1/2 | — | 7.25 | 7.65 | 7.85 | — | 8.55 | 9.65 | — | 13.35 | |
| 9/32 | 7/16 | — | — | — | — | 8.25 | 8.55 | 9.65 | — | — | |
| 9/32 | 1/2 | — | 7.25 | 7.65 | 7.85 | — | 8.55 | 9.65 | 11.25 | 13.35 | |
| 19/64 | 1/2 | — | 7.25 | 7.65 | 7.85 | — | 8.55 | 9.65 | 11.25 | 13.35 | |
| 19/64 | 9/16 | 6.85 | 7.25 | 7.65 | 8.05 | — | — | — | — | — | |
| 5/16 | 1/2 | — | 7.25 | 7.65 | 7.85 | — | 8.55 | 9.65 | 11.25 | 13.35 | |
| 5/16 | 9/16 | 6.85 | 7.25 | 7.65 | 8.05 | — | — | — | — | — | |
| 21/64 | 9/16 | 6.85 | 7.25 | — | 8.05 | — | — | — | — | — | |
| 21/64 | 3/4 | — | — | 7.65 | — | — | — | 8.65 | — | — | |
| 11/32 | 9/16 | 6.85 | 7.25 | 7.65 | 8.05 | — | — | 9.65 | — | — | |
| 11/32 | 5/8 | — | — | — | — | — | — | 8.65 | — | — | |
| 11/32 | 3/4 | — | — | — | — | 9.05 | — | 8.65 | — | — | |
| 23/64 | 5/8 | — | — | — | — | — | — | 8.65 | — | — | |
| 23/64 | 3/4 | — | — | — | — | — | 8.25 | — | — | — | |
| 3/8 | 5/8 | — | 7.25 | — | — | — | 8.25 | — | — | — | |
| 3/8 | 3/4 | — | — | — | — | 9.05 | 8.25 | 8.65 | — | — | |
| 25/64 | 5/8 | — | — | — | — | — | 8.25 | — | — | — | |
| 25/64 | 3/4 | — | — | — | — | — | 8.25 | — | — | — | |
| 13/32 | 5/8 | 6.85 | 7.25 | — | — | — | 8.25 | 9.11 | 11.75 | 13.45 | |
| 13/32 | 3/4 | 6.85 | 7.25 | 7.65 | — | — | 8.25 | 9.11 | 11.75 | 13.45 | |
| 27/64 | 5/8 | 6.85 | 7.25 | 7.65 | 8.47 | 9.05 | 8.25 | 9.11 | 11.75 | 13.45 | |
| 27/64 | 3/4 | 6.85 | 7.25 | 7.65 | 8.47 | 9.05 | 8.25 | 9.11 | 11.75 | 13.45 | |
| 7/16 | 5/8 | 6.85 | 7.25 | 7.65 | 8.47 | 9.05 | 8.25 | 9.11 | 11.75 | 13.45 | |
| 7/16 | 3/4 | 6.85 | 7.25 | 7.65 | 8.47 | — | 8.25 | 9.11 | 11.75 | 13.45 | |
| 29/64 | 3/4 | 6.85 | 7.25 | 7.65 | 7.65 | — | — | — | 11.75 | 13.45 | |
| 15/32 | 3/4 | 6.85 | 7.25 | 7.65 | 8.47 | — | — | 9.11 | 11.75 | 13.45 | |
| 31/64 | 3/4 | 6.85 | 7.25 | 7.65 | 7.65 | — | — | 8.25 | 8.65 | 11.75 | 13.45 |
| 1/2 | 3/4 | — | 7.25 | 7.65 | 8.47 | 9.05 | 8.25 | 9.11 | 11.75 | 13.45 | |
| 1/2 | 7/8 | — | 8.40 | — | 9.65 | 9.95 | 10.05 | 10.65 | 11.75 | — | |
| 1/2 | 1 | — | — | 8.75 | 9.65 | 9.95 | — | — | 11.75 | 14.05 | |
| 33/64 | 3/4 | 6.85 | 7.25 | — | 8.47 | — | — | 9.11 | 11.75 | — | |
| 33/64 | 7/8 | — | — | — | 9.65 | — | 10.05 | — | 11.75 | — | |
| 33/64 | 1 | — | — | — | 9.65 | — | 10.05 | 10.65 | — | — | |
| 17/32 | 3/4 | 6.85 | 7.25 | 7.65 | — | — | 8.25 | — | — | 13.45 | |
| 17/32 | 7/8 | — | — | 8.55 | — | — | — | 10.65 | 11.75 | 14.05 | |
| 17/32 | 1 | — | — | — | — | — | — | 10.05 | — | 11.75 | 14.05 |
| 35/64 | 7/8 | — | — | 8.55 | — | — | — | 10.05 | 10.65 | 11.75 | 14.05 |
| 35/64 | 1 | — | — | — | — | — | — | 10.05 | 10.65 | 11.75 | 14.05 |
| 9/16 | 7/8 | — | — | 8.55 | 9.65 | — | — | 10.05 | 10.65 | — | — |
| 9/16 | 1 | — | — | — | 9.65 | — | — | 10.05 | 10.65 | 11.75 | 14.05 |
| 37/64 | 7/8 | — | — | 8.55 | 9.65 | 9.95 | 10.05 | 10.65 | 11.75 | 14.05 | — |
| 37/64 | 1 | — | — | — | 9.65 | — | — | 10.05 | 10.65 | 11.75 | 14.05 |
| 19/32 | 7/8 | — | — | — | 9.65 | 9.95 | 10.05 | 10.65 | 11.75 | 14.05 | — |
| 19/32 | 1 | — | — | — | 9.65 | — | — | 10.65 | 11.75 | 14.05 | — |
| 39/64 | 7/8 | — | — | 8.55 | 9.65 | — | — | 10.65 | 11.75 | 14.05 | — |

| In-side Dia. | Out-side Dia. | Price Each | | | | | | | |
|--------------|---------------|----------------|------|-------|-------|-------|-------|-------|--|
| | | Overall Length | | | | | | | |
| | | 1/2 | 5/8 | 3/4 | 1 | 1-3/8 | 1-3/4 | 2-1/8 | |
| 5/8 | 7/8 | — | 9.58 | 10.05 | 10.65 | 11.75 | 14.05 | — | |
| 5/8 | 1 | 9.65 | — | 9.95 | 10.65 | 11.75 | 14.05 | — | |
| 5/8 | 1-3/8 | 14.05 | — | 14.65 | — | 18.05 | — | — | |
| 41/64 | 7/8 | 9.65 | 9.95 | 10.05 | 11.75 | — | — | — | |
| 41/64 | 1 | 9.65 | — | 9.95 | — | 11.75 | 14.05 | — | |
| 41/64 | 1-3/8 | 14.05 | — | 14.65 | — | 18.05 | — | — | |
| 21/32 | 7/8 | 8.55 | 9.95 | 10.05 | — | 11.75 | — | — | |
| 21/32 | 1 | — | — | — | 10.65 | 11.75 | 14.05 | — | |
| 21/32 | 1-3/8 | 14.05 | — | 14.65 | — | 18.05 | 20.65 | — | |
| 43/64 | 1 | 9.65 | — | 9.95 | — | 11.75 | 14.05 | — | |
| 43/64 | 1-3/8 | 14.05 | — | 14.65 | — | 18.05 | — | — | |
| 11/16 | 1 | 9.65 | 9.95 | 9.95 | 10.65 | 11.75 | 14.05 | — | |
| 11/16 | 1-3/8 | — | — | 14.65 | 16.65 | — | — | — | |
| 45/64 | 1 | 9.65 | — | 9.95 | 10.65 | — | 14.05 | — | |
| 45/64 | 1-3/8 | — | — | 14.65 | 16.65 | 18.05 | — | — | |
| 23/32 | 1 | 9.65 | — | — | 10.65 | 11.75 | 14.05 | — | |
| 23/32 | 1-3/8 | — | — | — | 16.65 | 18.05 | — | — | |
| 47/64 | 1 | 9.65 | — | 9.95 | 10.65 | 11.75 | 14.05 | — | |
| 47/64 | 1-3/8 | 14.05 | — | 14.65 | 16.65 | 18.05 | — | — | |
| 3/4 | 1 | 9.65 | — | 9.95 | 10.65 | — | 14.05 | — | |
| 3/4 | 1-3/8 | 14.05 | — | 14.65 | 16.65 | 18.05 | — | — | |
| 49/64 | 1 | 9.65 | — | — | — | 11.75 | 14.05 | — | |
| 49/64 | 1-3/8 | 14.05 | — | 14.65 | 16.65 | 18.05 | — | — | |
| 25/32 | 1-3/8 | 14.05 | — | 14.65 | 16.65 | 18.05 | — | — | |
| 51/64 | 1-3/8 | 14.05 | — | 14.65 | 16.65 | 18.05 | — | 23.05 | |
| 13/16 | 1-3/8 | 14.05 | — | — | — | — | — | 23.05 | |
| 53/64 | 1-3/8 | 14.05 | — | 14.65 | 16.65 | 18.05 | — | — | |
| 27/32 | 1-3/8 | — | — | 14.65 | 16.65 | 18.05 | — | — | |
| 55/64 | 1-1/4 | — | — | 14.65 | 16.65 | — | 19.15 | — | |
| 55/64 | 1-3/8 | — | — | 14.65 | 16.65 | — | — | 23.05 | |
| 7/8 | 1-1/4 | — | — | 14.65 | 16.65 | — | 19.15 | — | |
| 7/8 | 1-3/8 | — | — | — | 16.65 | 18.05 | — | — | |
| 57/64 | 1-1/4 | — | — | 14.65 | 16.65 | — | — | — | |
| 57/64 | 1-3/8 | 14.05 | — | 14.65 | 16.65 | 18.05 | — | 23.05 | |
| 29/32 | 1-1/4 | — | — | 14.65 | — | — | — | — | |
| 29/32 | 1-3/8 | 14.05 | — | — | 16.65 | — | — | 23.05 | |
| 59/64 | 1-1/4 | — | — | — | — | — | 19.15 | — | |
| 59/64 | 1-3/8 | 14.05 | — | 14.65 | 16.65 | 18.05 | — | — | |
| 15/16 | 1-1/4 | — | — | 14.65 | — | — | 19.15 | — | |
| 15/16 | 1-3/8 | — | — | 14.65 | — | — | — | — | |
| 61/64 | 1-3/8 | 14.05 | — | — | 16.65 | — | — | 23.05 | |
| 31/32 | 1-3/8 | — | — | 14.65 | — | — | — | 23.05 | |
| 63/64 | 1-3/8 | 14.05 | — | 14.65 | 16.65 | 18.05 | — | 23.05 | |
| 1 | 1-3/8 | — | — | — | 16.65 | 18.05 | — | 23.05 | |
| 1-1/64 | 1-3/8 | — | — | — | — | 18.05 | — | — | |
| 1-1/32 | 1-3/8 | 14.05 | — | 14.65 | 16.65 | 18.05 | — | — | |
| 1-1/8 | 1-3/4 | — | — | 21.25 | 19.55 | 21.25 | 26.79 | — | |
| 1-9/64 | 1-3/4 | — | — | — | — | 21.25 | — | 27.15 | |
| 1-5/32 | 1-3/4 | — | — | — | 19.55 | 21.25 | 26.79 | — | |
| 1-11/64 | 1-3/4 | — | — | — | 19.55 | 21.25 | — | — | |
| 1-3/16 | 1-3/4 | — | — | 21.25 | 19.55 | 21.25 | 26.79 | 27.15 | |
| 1-13/64 | 1-3/4 | — | — | — | — | 21.25 | — | — | |
| 1-7/32 | 1-3/4 | — | — | 21.25 | 19.55 | — | 26.79 | 27.15 | |
| 1-15/64 | 1-3/4 | — | — | — | — | 21.25 | — | — | |
| 1-1/4 | 1-3/4 | — | — | 21.25 | — | — | 26.79 | 27.15 | |
| 1-9/32 | 1-3/4 | — | — | 21.25 | 19.55 | 21.25 | 26.79 | 27.15 | |
| 1-5/16 | 1-3/4 | — | — | 21.25 | 19.55 | — | — | 27.15 | |
| 1-11/32 | 1-3/4 | — | — | 21.25 | 19.55 | 21.25 | 26.79 | — | |
| 1-3/8 | 1-3/4 | — | — | 21.25 | — | 21.25 | 26.79 | 27.15 | |
| 1-13/32 | 2-1/4 | — | — | — | 26.45 | — | 32.25 | — | |
| 1-7/16 | 2-1/4 | — | — | — | 26.45 | — | 32.25 | — | |
| 1-17/32 | 2-1/4 | — | — | — | 26.45 | 28.85 | 32.25 | — | |
| 1-9/16 | 2-1/4 | — | — | — | 26.45 | 28.85 | 32.25 | 37.25 | |

Headliner Bushings also available

HIGH SPEED HAND HACKSAW BLADES

◆ LIST NO. 106M

Made by top USA and other premium global manufacturers

1/2" Width .025" Thick

| Length | Teeth Per Inch | Price Each | Length | Teeth Per Inch | Price Each |
|--------|----------------|------------|--------|----------------|------------|
| 10 | 18 | .69 | 12 | 18 | .79 |
| 10 | 24 | .69 | 12 | 24 | .79 |
| 10 | 32 | .69 | 12 | 32 | .79 |

◆ HACKSAW FRAME



| Description | Tool No. | Price Each |
|--------------------------------------|----------|------------|
| Frame - fits both 10" and 12" blades | HF2 | 2.95 |

◆ MILLING MACHINE ARBORS



- Style A Arbors are provided with end pilots 23/32" x 1-3/4"
- Style B Arbors are draw bar type furnished with appropriate spacers and running bushings.

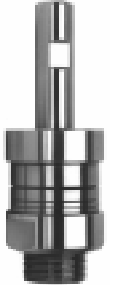
| Taper | Arbor Dia. | Length of Shoulder to Nut | Dia. of Running Bushing | Style | Arbor No. and Order No. | Price |
|-------|------------|---------------------------|-------------------------|-------|-------------------------|---------|
| 30 | 7/8 | 10 | 1-5/8 | A | M30-7/8-A10-2 | 189.00 |
| 30 | 1 | 10 | 1-5/8 | A | M31-A10-2 | 205.00 |
| 30 | 1 | 2 | — | B | M31-B2 | 145.00 |
| 30 | 1-1/4 | 10 | 1-5/8 | A | M31-1/4-A10-2 | 229.00 |
| 30 | 1-1/4 | 10 | 1-7/8 | A | M31-1/4-A10-3 | 229.00 |
| 40 | 7/8 | 10 | — | A | M40-7/8-A10 | 205.00 |
| 40 | 7/8 | 14 | 1-7/8 | B | M40-7/8-B14-3 | 225.00 |
| 40 | 7/8 | 16 | 1-7/8 | A | M40-7/8-A16-3 | 299.00 |
| 40 | 7/8 | 16 | 1-7/8 | B | M40-7/8-B16-3 | 275.00 |
| 40 | 1 | 3 | — | B | M41-B3 | 137.00 |
| 40 | 1 | 8 | — | A | M41-A8 | 209.00 |
| 40 | 1 | 10 | — | A | M41-A10 | 219.00 |
| 40 | 1 | 12 | — | A | M41-A12 | 259.00 |
| 40 | 1 | 14 | 1-7/8 | B | M41-B14-3 | 315.00 |
| 40 | 1 | 16 | 1-7/8 | A | M41-A16-3 | 315.00 |
| 40 | 1 | 20 | 1-7/8 | B | M41-B20-3 | 365.00 |
| 40 | 1-1/4 | 3 | — | B | M41-1/4-B3 | 145.00 |
| 40 | 1-1/4 | 8 | — | A | M41-1/4-A8 | 229.00 |
| 40 | 1-1/4 | 10 | — | A | M41-1/4-A10 | 255.00 |
| 40 | 1-1/4 | 12 | — | A | M41-1/4-A12 | 275.00 |
| 40 | 1-1/4 | 14 | 1-7/8 | B | M41-1/4-B14-3 | 319.00 |
| 40 | 1-1/4 | 16 | 1-7/8 | A | M41-1/4-A16-3 | 319.00 |
| 40 | 1-1/4 | 20 | 1-7/8 | B | M41-1/4-B20-3 | 389.00 |
| 40 | 1-1/2 | 20 | 2-1/8 | B | M41-1/2-B20-4 | 450.00 |
| 50 | 7/8 | 10 | — | A | M50-7/8-A10 | 257.00 |
| 50 | 7/8 | 18 | 2-1/8 | A | M50-7/8-A18-4 | 379.00 |
| 50 | 1 | 3-1/2 | — | B | M51-B3-1/2 | 168.00 |
| 50 | 1 | 8 | — | A | M51-A8 | 214.00 |
| 50 | 1 | 12 | — | A | M51-A12 | 286.00 |
| 50 | 1 | 15 | 2-1/8 | B | M51-B15-4 | 305.00 |
| 50 | 1 | 18 | 2-1/8 | A | M51-A18-4 | 378.00 |
| 50 | 1 | 18 | 2-1/8 (2) | B | M51-B18-4 | 342.00 |
| 50 | 1 | 24 | 2-1/8 (2) | B | M51-B24-4 | 399.00 |
| 50 | 1-1/4 | 3-1/2 | — | B | M51-1/4-B3-1/2 | 162.00 |
| 50 | 1-1/4 | 8 | — | A | M51-1/4-A8 | 233.00 |
| 50 | 1-1/4 | 12 | — | A | M51-1/4-A12 | 328.00 |
| 50 | 1-1/4 | 15 | 2-1/8 | B | M51-1/4-B15-4 | 347.00 |
| 50 | 1-1/4 | 18 | 2-1/8 | A | M51-1/4-A18-4 | 399.00 |
| 50 | 1-1/4 | 18 | 2-1/8 (2) | B | M51-1/4-B18-4 | 365.00 |
| 50 | 1-1/4 | 24 | 2-1/8 (2) | B | M51-1/4-B24-4 | 424.00 |
| 50 | 1-1/4 | 30 | 2-1/8 (2) | B | M51-1/4-B30-5 | 533.00 |
| 50 | 1-1/2 | 3-1/2 | — | B | M51-1/2-B3-1/2 | 193.00 |
| 50 | 1-1/2 | 18 | 2-1/8 (2) | B | M51-1/2-B18-4 | 606.00 |
| 50 | 1-1/2 | 24 | 2-3/4 (2) | B | M51-1/2-B24-5 | 470.00 |
| 50 | 1-1/2 | 30 | 2-3/4 (2) | B | M51-1/2-B30-5 | 573.00 |
| 50 | 1-1/2 | 36 | 2-3/4 (2) | B | M51-1/2-B36-5 | 646.00 |
| 50 | 2 | 24 | 2-3/4 (2) | B | M52-B24-5 | 573.00 |
| 50 | 2 | 30 | 2-3/4 (2) | B | M52-B30-5 | 649.00 |
| 50 | 2 | 36 | 2-3/4 (2) | B | M52-B36-5 | 720.00 |
| 50 | 2-1/2 | 36 | 3-3/8 (2) | B | M52-1/2-B36-6 | 1100.00 |

◆ STUB MILLING MACHINE ARBORS WITH WELDON SHANK

These arbors are made of alloy forged steel for a more durable service life. They are utilized for holding smaller cutters or saws and are designed to fit directly into end mill adapters. Three arbors spacers are included.

| Shank Diameter | Arbor Diameter | Tool No. | Price Each |
|----------------|----------------|----------|------------|
| 1/2 | 1/2 | HSM1212 | 55.00 |
| 1/2 | 5/8 | HSM5812 | 59.00 |
| 1/2 | 3/4 | HSM3412 | 65.50 |
| 3/4 | 1/2 | HSM1234 | 65.50 |
| 3/4 | 5/8 | HSM5834 | 65.50 |
| 3/4 | 3/4 | HSM3434 | 65.50 |
| 3/4 | 7/8 | HSM7834 | 65.50 |
| 3/4 | 1 | HSM10034 | 73.50 |
| 3/4 | 1-1/4 | HSM11434 | 84.50 |

Price includes spacers and nut
1" length of shoulder to nut.



◆ ARBOR RUNNING BUSHINGS WITH KEYWAYS



| Size | I.D. of Hole | Overall Length | Tool No. | Price Each |
|-------|--------------|----------------|------------|------------|
| 1-5/8 | 7/8 | 2-5/8 | ASB1587800 | 22.25 |
| 1-5/8 | 1 | 2-5/8 | ASB158100 | 22.25 |
| 1-5/8 | 1-1/4 | 2-5/8 | ASB158114 | 22.25 |
| 1-7/8 | 7/8 | 3-1/8 | ASB1787800 | 29.00 |
| 1-7/8 | 1 | 3-1/8 | ASB178100 | 29.00 |
| 1-7/8 | 1-1/4 | 3-1/8 | ASB178114 | 29.00 |
| 2-1/8 | 7/8 | 3-3/4 | ASB2187800 | 43.50 |
| 2-1/8 | 1 | 3-3/4 | ASB218100 | 43.50 |
| 2-1/8 | 1-1/4 | 3-3/4 | ASB218114 | 43.50 |
| 2-1/8 | 1-1/2 | 3-3/4 | ASB218112 | 43.50 |
| 2-3/4 | 7/8 | 4-1/4 | ASB2347800 | 55.00 |
| 2-3/4 | 1 | 4-1/4 | ASB234100 | 55.00 |
| 2-3/4 | 1-1/4 | 4-1/4 | ASB234114 | 55.00 |
| 2-3/4 | 1-1/2 | 4-1/4 | ASB234112 | 55.00 |
| 2-3/4 | 2 | 4-1/4 | ASB234200 | 55.00 |
| 3-3/8 | 2 | 4-1/4 | ASB338200 | 75.00 |



◆ ARBOR SPACERS WITH KEYWAYS

- Hardened and ground on all surfaces
- Lapped for parallelism

| Size | Tool No. | 7/8 Bore Price Each | Tool No. | 1" Bore Price Each | Tool No. | 1-1/4 Bore Price Each | Tool No. | 1-1/2 Bore Price Each | Tool No. | 2" Bore Price Each | Tool No. | 2-1/2 Bore Price Each |
|-------|----------|---------------------|----------|--------------------|----------|-----------------------|----------|-----------------------|----------|--------------------|----------|-----------------------|
| 1/16 | AS11678 | 3.95 | AS116100 | 4.40 | AS116114 | 5.17 | AS116112 | 6.55 | AS116200 | 8.00 | AS116250 | 12.00 |
| 3/32 | AS33278 | 3.95 | AS332100 | 4.40 | AS332114 | 5.17 | AS332112 | 6.55 | AS332200 | 8.00 | AS332250 | 12.00 |
| 1/8 | AS1878 | 3.95 | AS18100 | 4.40 | AS18114 | 5.17 | AS18112 | 6.55 | AS18200 | 8.00 | AS18250 | 12.00 |
| 3/16 | AS31678 | 3.95 | AS316100 | 4.40 | AS316114 | 5.17 | AS316112 | 6.55 | AS316200 | 8.00 | AS316250 | 12.00 |
| 1/4 | AS1478 | 4.20 | AS14100 | 4.87 | AS14114 | 5.50 | AS14112 | 7.31 | AS14200 | 8.75 | AS14250 | 13.00 |
| 5/16 | AS51678 | 4.55 | AS516100 | 5.46 | AS516114 | 6.05 | AS516112 | 8.11 | AS516200 | 10.00 | AS516250 | 14.85 |
| 3/8 | AS3878 | 4.55 | AS38100 | 5.46 | AS38114 | 6.05 | AS38112 | 6.32 | AS38200 | 10.70 | AS38250 | 16.00 |
| 7/16 | AS71678 | 5.55 | AS716100 | 6.35 | AS716114 | 6.85 | AS716112 | 9.24 | AS716200 | 12.25 | AS716250 | 18.00 |
| 1/2 | AS1278 | 5.85 | AS12100 | 6.35 | AS12114 | 7.64 | AS12112 | 9.91 | AS12200 | 13.00 | AS12250 | 19.60 |
| 5/8 | AS5878 | 6.35 | AS58100 | 7.00 | AS58114 | 8.32 | AS58112 | 11.15 | AS58200 | 15.20 | AS58250 | 23.00 |
| 3/4 | AS3478 | 7.00 | AS34100 | 8.15 | AS34114 | 9.24 | AS34112 | 12.00 | AS34200 | 16.80 | AS34250 | 24.25 |
| 7/8 | AS7878 | 7.80 | AS78100 | 9.53 | AS78114 | 9.91 | AS78112 | 12.65 | AS78200 | 18.40 | AS78250 | 25.50 |
| 1 | AS178 | 7.80 | AS1100 | 9.53 | AS1114 | 10.71 | AS1112 | 14.30 | AS1200 | 18.00 | AS1250 | 27.70 |
| 1-1/4 | AS11478 | 9.20 | AS114100 | 11.47 | AS114114 | 12.00 | AS114112 | 16.00 | AS114200 | 19.95 | AS114250 | 30.00 |
| 1-1/2 | AS11278 | 9.90 | AS112100 | 13.36 | AS112114 | 13.65 | AS112112 | 17.65 | AS112200 | 24.50 | AS112250 | 36.75 |
| 2 | AS278 | 12.90 | AS2100 | 17.80 | AS2114 | 16.00 | AS2112 | 20.85 | AS2200 | 27.20 | AS2250 | 40.75 |
| 3 | AS378 | 18.25 | AS3100 | 20.41 | AS3114 | 21.67 | AS3112 | 26.30 | AS3200 | 35.95 | AS3250 | 53.75 |